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By Lawrence H. Singer

Design for Living—The most exciting new idea in home building — the Ingersoll "mechanical core"—is rapidly becoming a manufacturing reality. Conceived by the Borg-Warner Corp., this striking innovation is expected to be a big factor in speeding residential construction during the years just ahead.

The Ingersoll unit is a utility "package" which should bring down the cost of many household conveniences. Around the central mechanical heart there are fitted snugly, like a series of giant children's blocks, the automatic hot-air furnace, water heater, sink, refigerator, stove, cabinets, etc.

All connections, as well as outlets for gas, oil, water and electricity, are cleverly included in the conception. McGraw-Hill, appraising this innovation, predicts a great future for the daring development.

* * *

Citrus Wonders—This department is in receipt of an interesting report from our good friend, Dr. Robert F. James, the celebrated chemical engineer and inventor. "Doctor Bob", who developed the Westinghouse Sterilamp some years ago, is now devoting his energies to the industrial processing of oranges and grapefruit down at Clearwater Beach, Fla.

It is newsworthy to learn that one of America's foremost paint manufacturers is now grabbing up all the orange terpenes available in Florida, for use as a solvent. Dr. James advises us that the material helps produce a top-quality saltproof and sunproof exterior finish.

The terpenes are the bitter element in the orange oil, and formerly were considered waste matter. Now, in addition to their value in paint manufacturing, Dr. James tells us that the material can be fractionated for synthetic rubber, synthetic camphor and synthetic menthol, among other things. Progress, it's wonderful!

* * *

Tomorrow's Speeds—A glimpse of future flying was offered recently by Lieut. Gen. Jimmy Doolittle, now back in private life as an executive of Shell Oil Corp. He discloses that airplanes already under construction will soon travel at speeds approaching 1000 miles an hour.

"Pilotless, wingless, gyro-stabilized, rocket-propelled air weapons have already achieved speeds of around 2500 miles an hour," declares the famous war leader, "and we may anticipate that the air weapons of the future will also be radio-controlled and radar-directed."

There is one major deterrent to aviation progress, however, Doo-

(Continued on page 9)

little admits that we still have a great deal to learn about forecasting weather—and combatting its adverse effects. But he adds, that "all the known safety devices are not yet in general use."

* * *

Market for Washers—In a survey of the future prospects for automatic washing machines, *Electrical Merchandising* Magazine estimates that sales will hit the million mark within five years.

Although over 17 million electric washers are estimated to be in use in this country at the present time, only about 2% are automatic. Thus it can be seen that the industry has set its sights rather high for the sales drive now getting under way.

The sales price of an automatic model runs from two to three times that of the standard, wringer-type design. Bendix alone has announced that it hopes to sell 600,000 units during the present year.

* * *

Caution on Packaging—American railroads, alarmed by the steadily mounting total of claims for damaged freight shipments, are undertaking a campaign to teach manufacturers the necessity of greater care in preparing goods for transit. It is estimated that about 50 million dollars were wasted last year through accidents to merchandise.

It is now possible for a manufacturing plant to install a simple trapdoor mechanism, at a cost of not much more than $20, to help in testing the packing efficiency of its shipping department. Oddly enough, it is reported in some cases, the device shows that a few firms actually waste money in needlessly elaborate containers.

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We Set The Pace—The United States emerged from the war in the position of undisputed world leader in the field of chemical manufacturing, declares Edward M. Melton of the General Aniline and Film Corp. No other country, he adds, can supply even the minimum needs of civilization.

On the other hand, Melton offers a word of caution for the future. "It is good business to anticipate lowered demand in the domestic market," he adds, "by planning now on a national scale to develop a sound export trade which may stand us in good stead several years hence."

* * *

Warning On Demand—Estimates about pent-up demand for consumer goods needs considerable revising, warns The New York *Times*, because of the lagging return of automobiles, electric appliances and other products. In the view of this newspaper, the situation has greatly changed since V-J Day, as a result of strikes, bottlenecks, and general reconversion delays.

"Much of the cash that was bulging in workers' pocketbooks at the war's end has been thinned 'out," continues this disturbing analysis. "Money set aside for a toaster, a vacuum cleaner and other goods has been coaxed away by such ready bait as pleasure trips, night clubs and hundreds of other diversions."

This cash, The *Times* points out, would have been readily channeled into the purchase of new products, if they had been available within a few months of the war's end. A good many thrifty workers, it is feared, have grown discouraged

(Continued on page 120)

Electrostatic Detearing

BY DR. EMERY P. MILLER
Harper J. Ransburg Co.

ELECTROSTATIC detearing offers to industry a quick reliable method of automatically removing, from the bottom edges of dip-coated or flow-coated items, those objectionable accumulations of coating material which remain in the form of tear drops and fat edges. By so doing, it extends the practical merits and possibilities of dip coating and flow coating to finishing a great variety of parts and products on a continuous production basis.

In this process, the items being dipped or flow-coated are usually supported from an electrically grounded conveyor. This overhead chain conveyor carries them from the dip tank or flow coating station over the usual drain board which catches most of the rundown of excess material and returns it to the tank. When the flow-down has substantially ceased and only the final clinging tear drops and fatty edges at the drain-off points are in a highly fluid condition, the coated articles pass over or adjacent to an insulated conducting grid which is or can be charged with high-voltage static electricity. The presence of this charged grid causes an attractive electrical force to be exerted upon the grounded piece within the active field of static electricity. This force is particularly strong at the points, corners and edges where the drain-off of excess coating material occurs. Due to this attraction, the excess paint, enamel or liquid plastic that has collected at the drain-off points or edges will be removed from the piece, leaving a smoothly coated surface. The coated work can then proceed into the oven where the coating is cured or baked to a fine hard finish.

Detearing As Applied To Coated Refrigerator Shelves

The illustration marked Fig. 1 shows a large dip tank located under and in line with the downward bend of an overhead conveyor which carries racks loaded with refrigerator shelves. The conveyor carries the hanging shelves through the dip tank shown in the right foreground and over the drain board in the background. After passage over the long drain board the shelves travel over the detearing grid which is visible far in the background of Fig. 1. Then they move forward to and through an overhead oven.

A close-up view which shows the coated parts leaving the drain board and passing over the detearing grids is identified here as Fig. 2. These refrigerator shelves receive two coats of liquid plastic material, so two conveyor lines are shown in this view. The source of high-voltage electricity and its connection to the detearing grids is faintly visible in the lower left corner of Fig. 2.

Although it is normally recommended that the grids be ventilated by direct air pressure or by exhaust ducts located specifically for

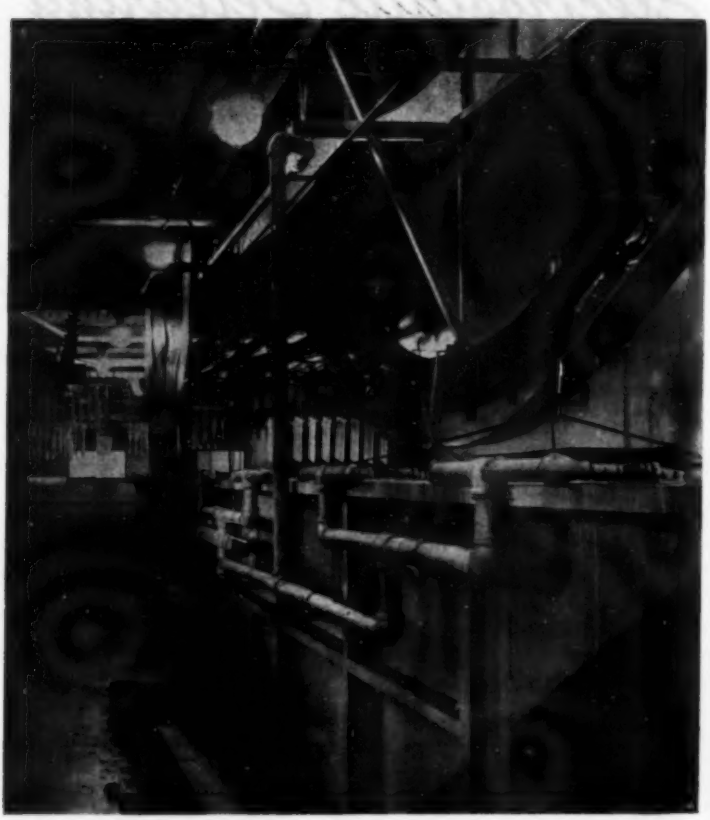


Fig. 1—Modern conveyorized dip-coating and electrostatic detearing setup.

this purpose, in this particular application complete ventilation of the area is taken care of by having the entire operation in a perfectly clean room which is supplied with an adequate movement of clean fresh air. Exhaust outlets for this ventilation are visible in the ceiling above the detearing grids, see Fig. 2. When dipping and detearing operations are performed in spaces where such an enclosed area of controlled clean air is not feasible, equivalent ventilation hoods are recommended to free the area of solvent vapors that normally accompany such dipping operations, and to move fresh air up-

ward through the detearing grids.

An inspector examining a plastic coated refrigerator shelf (one that has gone through the stations illustrated in Figs. 1 and 2) is shown in Fig. 3. Every shelf has a smooth white protective coating of uniform thickness free from flaws of any kind.

The Process Works On Most Materials And Products

Electrostatic detearing uses a voltage supply which is structurally similar to what is used for electrostatic spraying (described in a previous article) except that it produces slightly lower voltages at

Fig. 2—Conveyors carry dip-coated items over electrostatic detearing grids.

correspondingly lower current consumption. It possesses the same controlled features and is limited in current output on direct short circuit to 5 milliamperes. All of its controls are assembled into a self-contained control panel arranged for convenient wall mounting.

The electrodes used with this process can be made from any suitable material that is a good conductor of electricity. They are designed for the particular setup involved, due consideration being given to conveyor speed and the type of article being treated. Each "drain-off" point from which excess material is to be removed must be exposed to the electrode, for best results. If any drain-off portion of the coated article is electrically shielded from the electrostatic field by some other part of the article, it will be less effectively "deteared" in proportion to the degree to which it is shielded.

Factors Which Enter Into Its Successful Operation

Although the distance between the electrode and the article being deteared is generally held fairly constant at 8-in., because of the voltage used, other factors involved demand a certain degree of correlation before best results can be obtained. Basically the item must be of such construction that it can be dipped to obtain a satisfactory coating—with the exception of tears or excess material which will form at the drain-off points.

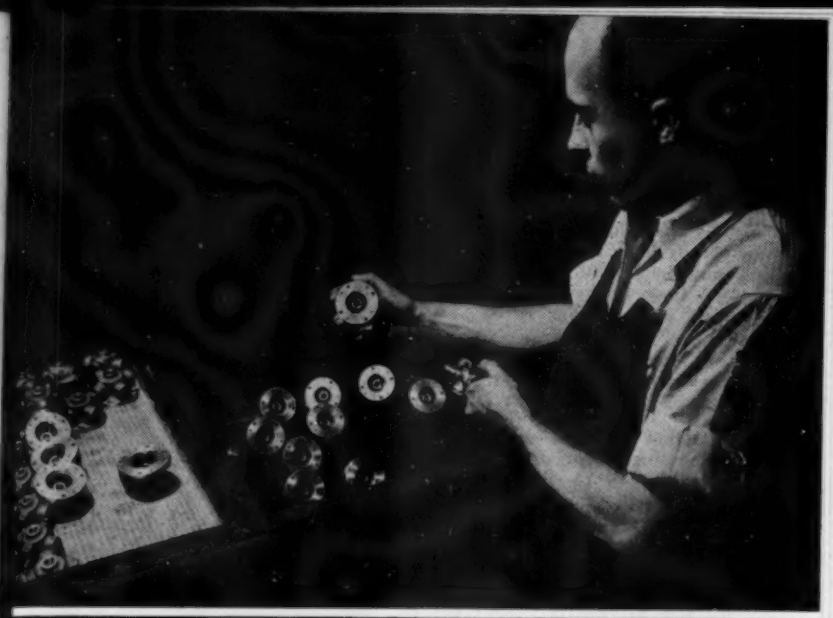
The coating material used must also fulfill coverage and finish requirements. These factors being fulfilled, it only remains to correlate: 1) the conveyor speed, 2) the distance between dip tank and detearing electrode, and 3) the length of the electrode itself. All of this must be arranged so that the freshly coated parts continue over the electrode until all excess coating material (clinging tear drops and fat edges) is removed; the parts leave the grid only after all flow-down material has stopped. Otherwise, there is the possibility of a subsequent reflow taking place and the formation of new clinging tear drops.

Although, for any particular application, the distance between the dip tank and the grid will depend upon the draining time and thus naturally upon the length of the item, it is seldom that this period requires more than five minutes. For small items it may be as short as half a minute.

The correlation of these factors, although they must be taken into account, places little restriction upon the flexibility of the electrostatic detearing method because of the broad limits permitted in their control. The process is applicable to all types of coating materials which lend themselves to dip coating—that is, all except certain water-soluble materials and certain waxes. Materials that cannot be made to give satisfactory reaction to electrostatic detearing are the exception rather than the rule. Cases of doubtful applicability must be tried before a definite decision can be made.

What Kinds Of Products The System Works On

Parts and products made of a wide variety of materials can be treated. Items made of metallic or electrical-conducting materials can be handled if their shape is such as to make dipping possible. Pottery, wood and plastic items can be deteared, but they require special consideration. Whether such



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A Baltimore firm cut the cost of cleaning in half when they stopped using complicated cleaning methods and expensive cleaning fluids, and started using Sun Spirits.

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items can be deteared or not depends upon whether or not a field of static electricity can be established at the detearing point. In many cases this can only be decided upon by trial, therefore such items should be carefully considered before they are ruled out of the group of applicable cases.

Few Limitations; It Really Works On Many Products

Two limitations confront the method. One is encountered when the coating material is sufficiently thermo-plastic to cause a harmful reflow during the baking process, after the object has left the detearing grid. The other limitation is encountered on those objects wherein the drain-off points are surfaces of relatively large radius. The process will only partially remove the excess material from such surfaces. It is therefore essential that the article be hung in such a manner that the drain-off material accumulates on edges or corners which are sharp or which do not exceed ¼-in. in radius in order to get the maximum benefits of the method.

Electrostatic detearing has been and is being used in connection with the coating of a variety of wire goods, metal die-cast and formed toys, padlock bodies, automobile head lamps, metal stools, rectifier units, small machine parts, hand tools, wooden blind parts, wooden drapery fixtures, and many other items of which these are but a representative sampling. In most applications hand labor has been saved and the quality of the coating job has been improved. In some cases dipping, as made possible by the automatic detearing operation, has helped to save coating material which otherwise would have been wasted due to the use of other methods.

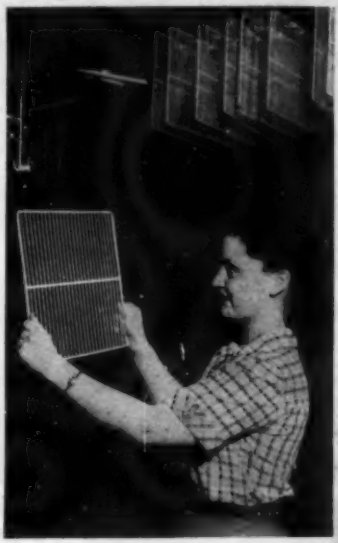

Fig. 3—Examining the finished work.

Both the electrostatic spraying and electrostatic detearing methods are daily finding new and unique applications in the finishing of various products. The wide range of materials and objects to which they are applicable, their low maintenance and operating costs, their remarkable efficiency, and the smooth, uniform thickness of coatings they help to produce—these merits and more have earned them a place of importance in industry.

A postwar market for 60,000,000 home radio receivers—enough to keep the industry at peak production for six years—is anticipated by the Westinghouse Electric Corp.

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SPRAY EQUIPMENT
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Planning for IMPROVED MATERIAL FLOW

BY

WILLIAM W. LOMAN

What specific principles and details to consider and what action to take in planning an improved way to get products in process through various finishing operations quickly, safely and effectively at minimum cost.

THE "flow of work in process" is fast entering the picture in the highly competitive postwar industrial field. With some conversion problems still with us, many firms will find it profitable to check their production figures and determine whether or not they have really efficient production methods. This applies particularly to those departments wherein protective or decorative coatings are applied—and where surfaces are prepared and conditioned to receive those coatings.

Concerns that have no specific department or person responsible for looking after and improving their material handling activities are likely to continue with what they have been using for years, merely because it has been easy to ride along "as is." Probably no individual has taken it upon himself to demonstrate to or impress upon the management any of the newer ideas and practices which may be working well in similar industries, or which might be developed in their own factory.

There is reason to believe that any shop—even a small one—will find it profitable to survey and plot the flow of material through its finishing department step by step and, by careful study, plan a new system that will speed along production, improve quality, and reduce worker fatigue. Larger concerns are fast sensing the value of establishing a man or a department that will be responsible for problems of this kind. They furnish this individual or the head of the department with subscriptions to trade journals and with membership in various technical societies, in order that he may profit by organized research and an exchange of ideas and information.

A systematic study of your handling conditions, as outlined in the steps described in the following paragraphs, will probably bring to light conditions and data which are now unseen or unrecognized stumbling blocks to efficient production in your own shop.

Make A Flow Chart Of Operations On All Products

Start with a floor plan of the space under consideration, and make a "flow chart" of all operations, whether they are in production, transferring, handling, inspection or storage. Start with the material as it enters the door of the department. Probably it enters on trucks or conveyors. Make a study of the equipment and methods now used, and consider what might be employed to better advantage, either manually or mechanically, to reduce the possibility of delay, or of damage to the products in process.

Notice if and where the material comes to rest before an operation, thus creating a temporary storage problem. If stock can be kept on the move, you save floor space and you help to prevent items from being set aside temporarily, to become a headache for someone later. Determine whether the material is being inspected or checked while it is in a stationary or moving position.

The distance traveled between work stations can be estimated and listed alongside the description of the work being performed. It is important that not a single operation or movement be omitted, or grouped with another, whether it is merely moving an object across a work table or trucking it across the room. If time standards are available they should be listed along with each operation. Usually material movements performed by dispatchers, inspectors or service operators must be estimated, because these functions seldom if ever fall in wage incentive systems where a close time check is necessary.

What To Look For, And Where To Improve

Study the "flow chart," giving special attention to any items that reveal long operation times, great travel distances, or a large amount of manual handling of the material. Take up each item in turn and search for a better method. Examine trade journals for pictures or articles on processing of parts that are similar in size and shape, and which have similar processing specifications.

Question every sales or service representative with whom you have contact. Find out if he has observed any equipment or methods on his numerous calls that might be an aid to your problem. These men are glad to share their knowledge regardless of whether or not it promotes the direct sale of their particular products. Once they have your problem in mind they will carry it to other men in your field who are well acquainted with production equipment. When attending meetings of technical societies, inquire about new information; and also submit to other members whatever information you think may be helpful to them in their field.

The one man you should not pass up in your quest for help is the operator himself. Perhaps he comes closer than anyone else to being the real "efficiency expert," because it is only natural that he will strive to make his own job

easier. Usually an intelligent operator is full of ideas. Some of them may be of little value because he fails to sum up their costs and practicability, but they may start you or someone else thinking along lines that will end up in the design of a new handling device.

Rewrite "Flow Chart" After Study And Investigation

Now rewrite your "flow chart," using the information you have gained. Omit operations that can be combined with others and insert those where new processes may speed up the travel time and reduce handling. Insert the estimated travel distances, operation times and floor space savings. Tabulate the number of operations and other items, and make a comparison with similar items on the first flow chart you made of the system. Take the average hourly wage of the employees in the department, the yearly cost of floor space in the plant, plus the added production attainable, and you can place a value on the savings which the new system should make.

Balance the cost of new equipment against the possible savings, not forgetting that the yearly cost of maintaining the equipment plus taxes and insurance, must be added. Usually a standard percentage of the original equipment cost is set up by the management, and it combines all of these factors into one item. Draw up your findings and conclusions into a form that can be followed easily. Then present it to the proper individual in your organization so he can quickly check through it step by step and either pass it on to his associates or higher officials, or make the decision himself.

Many surprising facts will be brought to light by actually making such a comparison as I have just described. Perhaps it may be discovered that even though some new equipment will eliminate manual operations, the cost of equipment, when projected over a number of years, is really a losing investment.

The supervisor or foreman who has foresight to check into the production data of his department and produce better methods at lower costs will find himself an essential man in any modern manufacturing plant.

Burrell and Neidig Form Chemical Consulting Firm

Harry Burrell, and C. P. Neidig announce the formation of Burrell & Neidig, an industrial chemical consulting firm with offices at 115 Broadway, New York City.

Mr. Burrell was formerly Director of Research of the Heyden Chemical Corp., Garfield, N. J. laboratories and Mr. Neidig was in charge of the Market Research and Technical Service Group for the Heyden Chemical Corp.

Burrell & Neidig plan to consult on formaldehyde and its uses, plastics and their raw materials, protective coatings, sales development work on new products, research administration and market surveys for the chemical and allied fields.

Sales-Production Meeting Held by Hilo

The Hilo Varnish Corp., manufacturer of protective and decorative coatings for trade and industrial uses, held a joint sales-production meeting of key factory men, laboratory staff, sales department heads and executives at the Brooklyn plant on Tuesday, May 14th.

Presided over by Dr. Joseph J. Mattiello, Vice President, the meeting was the seventh in a program of regularly scheduled round table conferences designed to create a closer bond of understanding and coordination among the various departments within the company.

Conditions pertaining to the industry and future plans of the company were discussed.

is especially developed for that purpose. It forms a corrosion-retarding phosphate coating on iron and steel surfaces that insures better PAINT ADHERENCE of the finish to the metal. It is a newer development originating from exacting war-time requirements, and because of its superior performance is now being adopted and used by automobile concerns, refrigerator companies and metal furniture manufacturers, etc. Economical, laboratory tested, simple to control. Its demonstrated success merits your consideration. Your inquiry is invited.

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Degreaser Maintenance; Solvent Conservation

The cleaning efficiency and operating economy of solvent degreasing setups depend upon methods employed to use the solvent effectively, and with minimum wastefulness, plus correct machine maintenance.

BY S. J. TREZAC

LAST MONTH we reviewed chlorinated solvent degreasing, describing briefly its four principal types and pointing out its merits and its applications. Now, to complete our discussion of this important subject, the editorial spotlight is focused on *solvent conservation* and *degreaser maintenance.*

The attention given to these two factors materially influences solvent degreasing's production efficiency and operating economy. They are of timely interest, since the urgent necessity of saving materials and manhours still exists.

Re-tooled and re-geared for peacetime production, industry now faces the task of maintaining capacity output—making more goods available to more people at less cost. At the same time, rising costs must be checked by establishing economies or effecting improvements along the production line wherever such possibilities can be found. It is from these standpoints, primarily, that methods of conserving solvents, and suggestions for simplifying equipment maintenance are important, and therefore warrant more than casual consideration.

Maximum operating economy with a degreaser calls for the removal of all avoidable solvent losses. Important factors to be watched and correct procedures to be employed under usual operating conditions are: Draft elimination, heat balance, air mixing of solvent caused by spraying solvent through air; pump and valve maintenance, solvent carry-out, excessive solvent vapor displacement; speed of work through solvent vapor zone, heating work to vapor temperature, moisture in solvent, distillation of dirty solvent, draining of filters, and conveyor maintenance.

See That No Drafts Blow Across Degreasing Machine

Every degreaser should be located so that it will not get cross drafts from ventilating fans, open windows or open doors; yet it should be housed in a well-ventilated room—one of 20,000-cu. ft. or larger if possible.

In the event that it is impossible to locate the unit in a position where it is free from cross drafts, a suitable shield should be placed on the windward side of the equip-

New Egyptian Building at South Kearney, N. J.

Sales, advertising and accounting departments of Egyptian Lacquer Manufacturing Company have moved into a modern home recently erected on the company's factory site at South Kearney, N. J.

The new structure, in proximity to Egyptian's laboratory and manufacturing facilities, increases our ability to serve you. Please note the new address and mark your records accordingly.

Executive headquarters remain at Rockefeller Center, New York City.

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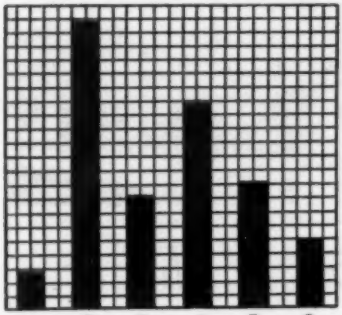

Cross drafts of air over a degreaser increase the loss of solvents.

1) Normal operation; minimum velocity of air flow over top of degreaser.

2) Air velocity 4-ft. per second in direction of longest dimension of the machine.

3) Air velocity 4-ft. per second with half cover to windward side raised vertically.

4) Air velocity 4-ft. per second with both half covers raised vertically.

5) Air velocity 4-ft. per second with both windward side and end of machine protected by a 6-in. shield.

6) Air velocity 4-ft. per second, but with a 12-in. shield on windward side and ends. (Courtesy Detrex Corp.)

ment to break any cross drafts. No shield is needed on the leeward side, however.

A test for cross drafts can be made with a velometer capable of determining low velocity drafts. Where this type of instrument is not available, a simple method frequently used to determine cross drafts is to note the deflection of a long strip of tissue paper, say a strip about 3-ft. long and 2-in. wide. Fastened to the end of a long stick, the paper streamer will assist in testing cross drafts in otherwise inaccessible places.

One may also observe the direction and speed of smoke travel. As an emergency, smoke blown into the air zone of a degreaser will serve to show the direction of air movement. It is not recommended, however, that anyone make a habit of smoking around a solvent degreaser.

When an exhaust system is used, it must be carefully adjusted. Where local regulations permit, a damper should be placed in the stack to control the air velocity; but the damper should be shut off when the machine is not in operation, especially if covers are not arranged to prevent stacking or back draft effects when closed.

Location of a degreaser should be checked in relation to any air conditioning units, ventilating units, or overhead unit heaters, to make sure that it is shielded from such air currents. Proper shielding, relocation of the machine or changing direction of air flow—any or all of these will help to prevent excessive solvent vapor disturbance and consequent solvent losses.

If the degreaser is located in a pit, proper ventilation must be provided and checked to make absolutely certain that it functions all right. Up-drafts at the sides of the machine are bad.

Heat Balance, Vapor Level In Degreasing Machine

The vapor level in a degreaser should be kept constant. The volume of air-solvent mixture dispelled from a machine with each fluctuation of vapor level is equal to length of machine multiplied by its width, multiplied by change of depth of vapor zone. In a machine 6-ft. long by 3-ft. wide, with a vapor drop of 12-in. for example, 18-cu. ft. of air-solvent mixture is dispersed into the room each time the vapor is brought back to its normal position. The highest

PERM-A-CLOR WHIPS THE TOUGH DEGREASING JOBS

...AND TRIAD HANDLES THE AVERAGE

For years, metal fabricators have turned to PERM-A-CLOR when their production flow clogged in the cleaning department.

Today, more than ever before, they are PERM-A-CLOR-minded when they buy.

They specify a reputation-backed, breakdown-resistant solvent that has been used successfully on thousands of grueling vapor-degreasing applications—aluminum, die castings, mixed metals.

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elevation of the true vapors should not exceed the midpoint of the condenser. No work should be placed in a degreaser unless the vapor level is up on condenser.

Under normal conditions that prevail in the average plant, true vapor height can be noted on structural members inside the machine (and which are not part of the side walls) or on a metal strip suspended through both the air and vapor zones. The wet area of the strip indicates true vapor, whereas the dry area indicates air-mixed-solvent zone. (Wet area shown on condenser, or on freeboard above condenser, may indicate either true solvent vapor or air-mixed-solvent.)

Operating Technique Depends Upon Work Conditions

Heat input must be sufficient so that when the cold work enters the degreaser, the vapor line will not drop below bottom of condenser. Weight of work loads should be decreased if more heat input is not available. In some cases, where work loads cannot be reduced, it is practical with hand-operated machines to use a by-pass line to inject steam of higher pressure to the coils (but not to exceed 25-lbs. per square inch) when the load enters. This by-pass valve should be inter-connected with a whistle valve. Similarly, with gas and electrically-heated degreasers, temporary additional heat may be supplied.

Since air-actuated vapor-level controllers are safety instruments, they should be set at maximum sensitivity, namely with shut-off at about 182° F. The bulb is normally placed about 3-in. above the maximum height at which it is desired to maintain true vapors. Vapor height should be controlled by variations in heat input only. Water outlet temperature, however, should remain constant. Heat input should always be sufficient so that the vapor line will not drop below bottom of condenser, even with maximum load.

In operation the condenser must be neither too hot nor too cold. If too hot, vapors are expelled from machine and the freeboard will become heated, accelerating drafts. Condensers operated below room temperature will cause atmospheric condensation of moisture within the machine. This, in turn, increases solvent loss due to lightness of the moisture-ghost-vapors formed. Recommended outlet temperature of condensers is:

Jacket condenser, from room temperature to 120° F.;

Coil condenser, from 100° F. to 120° F.;

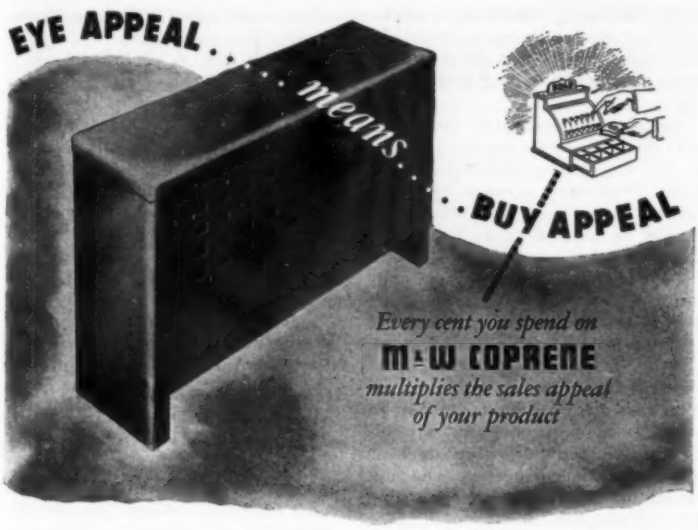
Shell condenser, located above top of jacket, 120° to 140° F.;

Shell condenser located at middle of jacket or lower may have outlet temperature as low as 100°.

Water temperatures of condenser outlets may be set at the minimum of these temperature ranges when work is being run through unit. The peak water temperature will be approached when the degreaser is standing by. In shutting down the machine, turn off the heat first before turning off the water. Always close covers when equipment is not in use.

Where Solvent Is Wasted; How To Prevent It

If solvent is pumped or sprayed through the atmosphere above the true vapor line, excessive losses will occur by aeration. The following four pointers have proved helpful in this connection:



M & W Coprene air-drying enamels increase the sales appeal of such products as metal or wood cabinets, furniture, air-conditioning equipment, and many other special products where a handsome, high-gloss, chemical-resistant finish is desired. They protect and prolong the life of such products because of their excellent adhesion to steel and great resistance to weather and most chemicals.

Coprene can be supplied in plain air-drying enamels, synthetic metallic enamels that air-dry to a lustrous metallic finish, or in air-drying Hammertone finishes. Coprene air-dries dust-free in a few minutes and hard overnight, but can be force-dried. Available in standard colors in: plain enamels, synthetic metallic enamels or Hammertone finishes.

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1) The spray nozzle of a hand-operated slush-type machine should always be underneath the true vapor line when spraying and draining.

2) Jets in machines equipped with fixed sprays must be directed so that ricochet is within the vapor zone. Dispersion screens in automatic vapor - spray - vapor units should be located so as to absorb spray ricochet.

3) Sufficient heat must be put into automatic vapor-spray-vapor degreasers so that true vapor level remains above top bank of sprays.

4) A metal rod suspended permanently from the air zone through true vapor zone can be utilized to serve as a ready check on air-solvent mixing by showing dryness where this action occurs. The elevation differential between wet line on rod and wet line on condenser of freeboard provides a constant visual check on amount of air-solvent mixture present during operation.

In this way foremen and operators can see at a glance whether or not the degreaser is functioning at peak economy. *The greater the number of inches of air-mixed solvent, the more solvent will be wasted!*

Correct Maintenance Of Pumps And Valves

Obviously, solvent leaks from pumps, packing glands, transfer piping valves, door gaskets, etc., must be prevented. To find invisible leaks, hold a cloth around valve stems, gaskets, etc., for about one minute and then quickly sniff for any solvent odor. When pumps need repacking it is important that packing recommended by the equipment manufacturer be used. It is equally important that the repacking should be done properly.

For pump lubrication, a mixture of graphite and glycerine is suggested as one suitable lubricant. Made into a paste, it is usually applied to the fittings of the pump with a grease gun. Most firms that supply lubricating oils and greases will have something that is resistant to the dissolving effect of chlorinated hydrocarbon solvents.

Packing of valve stems is accomplished by: 1) removing all packing from gland, and 2) repacking with recommended packing. A generous amount of glycerine-graphite lubricating mixture of heavy paste consistency is applied.

How To Prevent Excessive Solvent "Carry-Out"

The position of parts when they are removed from the vapor must be controlled to avoid liquid solvent carryout. Work should be suspended in a position that will provide drainage, so that liquid will not be trapped in recesses, pockets, etc. Liquid solvent should be drained from pockets and recesses by tilting or rotating the work while it is below the true vapor line.

On cup-shaped parts, a special type of conveyor or elevator machine designed with rotating fixtures and rotating baskets may be necessary or desirable in place of the ordinary hand-operated and conveyorized units. Woven wire baskets and fixtures can be designed so they will not trap the solvent. Where hollow tubes are used on fixtures, they must be arranged to drain completely, or be tightly plugged to keep out any solvent. Round rod Bakelite or similar material in sheet form may be utilized for basket partitions to prevent scratching of polished work.

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Avoid Excessive Solvent Vapor Displacement

Another thing to consider is the relation of basket work area to the cross-sectional area of the machine. Small clearance between sides of the machine and work will cause displacement of the vapors into the air zone or out of the machine, much the same as a piston displaces air when moving through a cylinder. More clearance between sides of machine and work is advised when the contour of work does not permit air or vapor to pass through it easily. Vapor displacement is also created by the pumping action of the vapors, as discussed under the heading of "Heat Balance," when work loads are considerably heavier than those for which the machine was made.

Speed Of Work Through Solvent Vapor Zone

Recommended speed for an average work load entering and leaving the solvent vapor zone is 11-ft. per minute. However, parts with surface contour that will cause excessive displacement of vapor should be lowered into and raised from the vapor at a slower rate, while a sheet of metal in edgewise position may be lowered and raised through top of vapor zone at higher speed.

Since the speed of a conveyorized degreaser is engineered with due consideration to the pumping action set up by the work itself, or the baskets of parts, units of this type normally should be operated without changing speed in the field. On the other hand, reduced speed should be employed when excessive vapor agitation causes solvent vapors to mix with or become dispelled into the air.

In transferring work between chambers of hand-operated, dip-type degreasers, the work should be kept as close to the top of dam as possible . . . . to keep top of work below top of true vapor zone. Work also should be moved slowly —at a speed not to exceed 11-ft. per minute. If top of work or basket extends above true vapor zone, speed of transfer between chambers should be materially slower to prevent air mixing.

Heat The Work To Vapor Temperature

Parts should remain in machine until thoroughly clean and heated to temperature of solvent vapors (188° F.). Work should be left in vapor until solvent stops dripping from it, thus showing that parts have been heated to proper temperature.

If work is not heated to proper temperature of vapor, it will carry out liquid solvent on its surface. This is due to the fact that there is insufficient heat content in the metal to cause thorough evaporation and drying as the work is removed slowly through the vapor line.

Testing And Preventing Moisture In Solvent

Water may appear in a degreaser from condensation of moisture out of the atmosphere when condensers are not operated at proper temperature, or it may be carried in on the work. This water must be removed quickly to prevent high solvent loss. While the water separator with which most degreasers are equipped normally performs this function, it is well to know how to make tests to determine the presence of moisture in the solvent, and to correct operat-

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ing procedure so that the quantity of moisture to be removed by the water separator is at a minimum.

Presence of water in a machine is indicated by cloudy vapors, as contrasted with transparent vapors when the unit is operating correctly. When solvent is cool, excessive amounts of water float on surface of solvent. Water-laden vapors, also called "ghost vapors," are much colder and lighter than true solvent vapors, thus resulting in a high solvent loss as well as ineffective metal cleaning.

Any water that accumulates on the surface of solvent should be removed before operations begin. A dipper of chamois skin, or a 150-mesh screen, may be used for this purpose. First it should be wetted with solvent before using it to remove the water. To prevent sweating, keep the water outlet temperature of condenser above room temperature.

Distillation Of Dirty Solvents

Regular cleaning of the degreaser is an aid to efficient operation. Frequency of cleaning depends upon what contamination is introduced, but under average conditions weekly or bi-weekly cleaning is advisable. Cleaning should not be deferred more than three weeks, even though the solvent does not seem to be dirty.

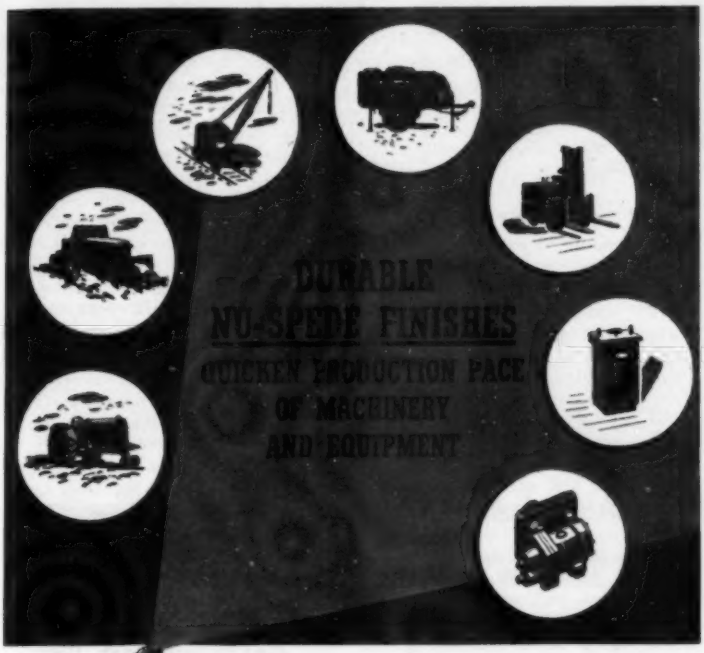
Solvent is reclaimed from the dirt-oil-solvent mixture by distillation within the degreaser itself. Lowest recommended solution level during distillation is: Top of steam coil for steam-heated machines; top of heating element for electrically-heated units; and ½-in. depth at high end of sloping bottom for gas-heated equipment.

If solvent vapors arise from the remaining dirt-oil-solvent mixture when full heat is on, at the time the above liquid level has been reached, the mixture still has enough solvent content to require further distillation. The dirt-oil-solvent mixture can be removed from the machine and kept in a covered container until the next distillation period, when it may be added to the newly created dirt-oil-solvent mixture in the degreaser for further distillation.

These mixtures are discarded only when vapors do not rise to the solvent condensate collecting trough with heat on. When vapors stop rising toward the end of distillation, it is well to stir the residue slightly to see that no solvent is trapped in the sludge. If the temperature of the residual oil reaches its flash point, a fire hazard will exist in gas and electric-heated units at the time of complete distillation. Thermostats on machines of these types are set by the manufacturer for shut off at 265° F. Available temperature setting range is 220° to 290° F. The bottom thermostat should be frequently tested to make certain that it functions properly.

Splashing of hot oil and solvent is another working hazard to guard against. This may happen if solvent is added to hot oil in the boiling chamber of a degreaser. Sudden expansion of solvent poured or spilled into hot oil at a temperature above the boiling point of solvent may splash hot oil on workmen near the machine. Workmen should be given due warning on this danger.

When the amount of contamination removed is considerable in proportion to the machine's solvent capacity, and too frequent distilla-



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tion of the degreaser interferes with production, use of a solvent still as an auxiliary to the machine is suggested. Solvent stills are equipped with a steam injector to stir up the heavy oil contamination and to more completely distill the stabilizers.

Draining Of Filters

Care should be exercised in draining solvent from filter bags and in emptying filters to avoid excessive solvent loss. To clean a filter when a still is in operation on the same machine, pump the solvent from filter into still. Close all valves on filter except valve on filter vent, drain valve to still pump suction, allow filter to stand for 15 minutes before removing cover plate; and then pump the solvent which has drained from filter bags and filter cake.

If no still is in operation with same machine as filter, then drain solvent into pail and pour it into a drum which is on end and has a drain valve in its side bung. Allow bags and filter cake to drain for 15 minutes; then transfer balance of drainage. After the drum is more than half full of solvent, the solvent thus settled free of filter aid is drained from bung. The same drum can be used until it is filled with dirt and filter aid to its mid-point; then it can be discarded.

Conveyor Maintenance

Only normal machine maintenance is required to get continuous satisfactory operation and long life from crossrod conveyors. Tightness of the chain is controlled by take-ups. Care must be observed to make sure that certain chain take-ups are in alignment, so that the conveyor will run smoothly and easily. Do not exceed the recommended load per crossrod. Load crossrods uniformly. Do not permit work to extend beyond outside limits of work tray or basket.

Follow the lubrication recommendations of motor and gear-reducer manufacturers. Lubricate regularly all conveyor bearings except those in the vapor section of the degreaser. Bearings in solvent vapor zone are the oilless type and need no lubrication. Lubricate the conveyor chain occasionally, with the recommended type of lubricant.

This is by no means a complete discussion of solvent conservation and degreaser maintenance, but it is hoped that sufficient information on these two topics has been given here to help users of this equipment to secure the maximum cleaning efficiency and operating economy that it is expressly designed to provide.

Maximilian Toch Dies

Dr. Maximilian Toch, noted paint chemist and art expert died May 28 of a heart ailment, in Wickersham Hospital, New York City. His age was 81.

Dr. Toch was a prominent leader in the paint industry, having been President and Chief Chemist of Toch Brothers, Inc., and Board Chairman of the Standard Varnish Works. He was largely responsible for the introduction of China wood oil into this country; he developed the U. S. Navy battleship gray paint formula, the cement treatment used in the construction of the Panama Canal, the waterproofing compound employed in many large U. S. Navy drydocks, and the Toch system of camouflage widely used in World War I.

Dr. Toch will be remembered as a distinguished scientist, as an author, lecturer, art expert and sportsman. He was a Fellow of the American Association of Arts and Sciences, a member of the Chemical Society of London; president of the American Institute of Chemists, a member of the Chemical Engineers Society and the Society of American Magicians.

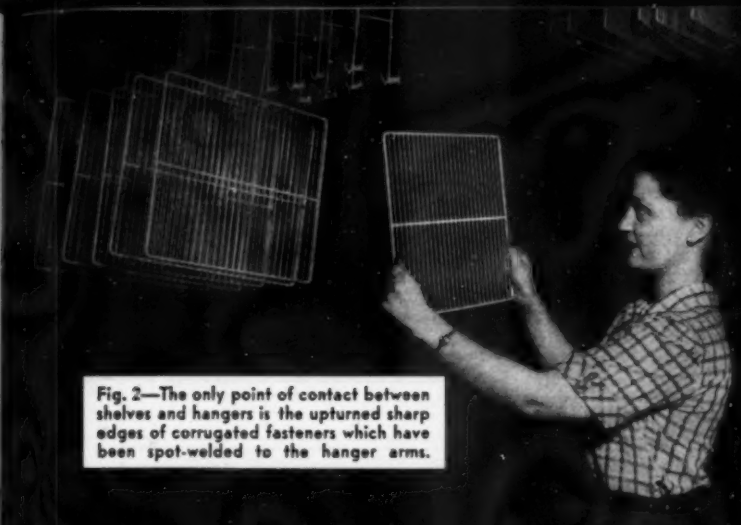

Fig. 2—The only point of contact between shelves and hangers is the upturned sharp edges of corrugated fasteners which have been spot-welded to the hanger arms.

ACCESSORIES for REFRIGERATORS

SOMETHING new has been added in the durable finishes field of coatings for food shelves in refrigerators. Last month, I gave the rigid finish specifications demanded for food shelves and other accessories, and the strenuous quality tests to which the finished surfaces are subjected. Our plastic coated shelf is the answer. The white coating material has an alkyd-urea formaldehyde base. It is put on by dip-coating, which is followed by detearing, curing and cooling—all along a conveyor line 1000-ft. in length.

Before describing in detail the equipment used, I shall take up the protective coating of these food shelves where we left them last month—at the unloading station of the cleaning and plating machine. This space is about 14-ft. from the loading station shown in Figs. 1 and 3. Shelves are hung on racks so their edges are parallel to the direction of conveyor travel, as shown in Fig. 1. It is important that the shelves enter the coating material edgewise and not broadside.

Oven Bake to Condition Surfaces for Coating

First operation is baking in the hydrogen relief oven (entrance and air-lock shown in Fig. 1) for ten minutes at 350° F. This drives

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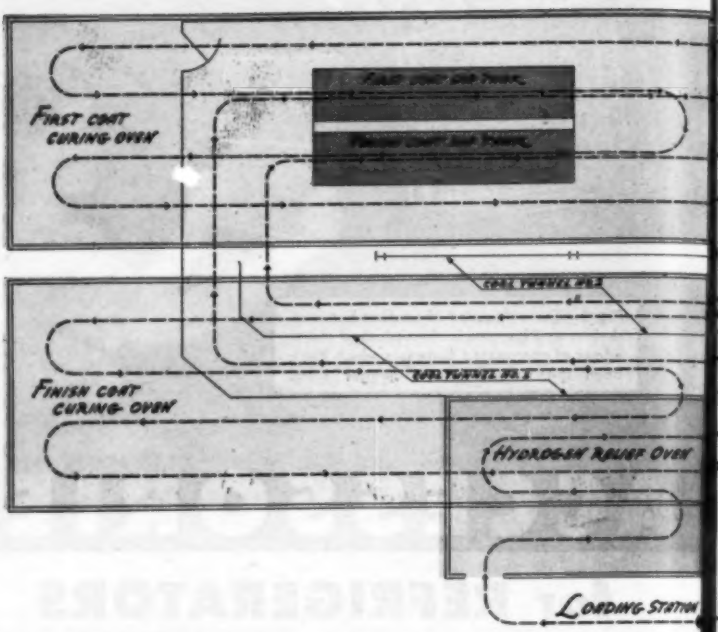

Fig. 4—(Below) This down sweep of the overhead conveyor line submerges the suspended food shelves into a long tank of white coating material.

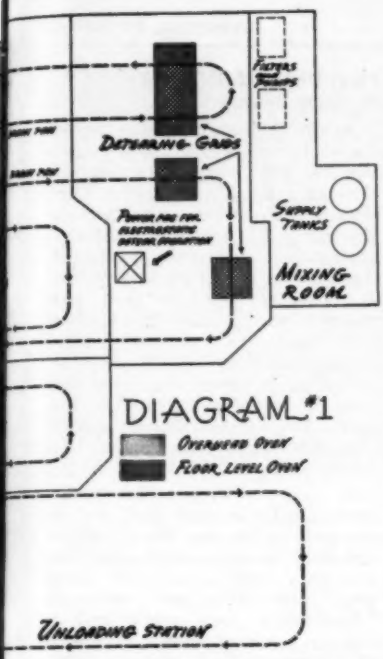

Fig. 3—Floor plan diagram shows the conveyor line, dip tanks, detearing grids, ovens and cooling zones. The two ovens that are overhead appear in light-color tint. The single oven at floor level is in stronger color.

off any and all hydrogen gas that may have been trapped in the pores of the metal during plating and subsequent surface-preparation operations. If this hydrogen were not removed, the plastic coated surface would have thousands of tiny blisters.

Incidentally, this hydrogen relief oven is the only oven located at floor level. Both first-coat and finish-coat curing ovens are elevated, as shown by light color tinted areas in Fig. 3. Shelves pass from the hydrogen relief oven into and through cooling tunnel No. 1. They are in the cooling tunnel for seven minutes, during which time their temperature is reduced to approximately 110° F. Then they move forward to the first-coat dipping tank.

Dipping is accomplished by a down sweep in the conveyor line, as shown in Fig. 4. Referring further to Fig. 4, notice the narrow drip pan which follows directly under the conveyor chain. This drip pan catches any and all grease or oil drippings or falling particles of dirt from the moving conveyor chain. In this way it protects the coating material in the dip tank and also the shelves before and after dip coating.

First Dip Coat; Detearing; Oven Bake; Cooling

Successful dip-finishing is dependent upon several elements—the angle at which the article enters, passes through and leaves the coating material, the speed of travel, viscosity of coating material, temperature of everything involved, and cleanliness. If any one, or any combination of these elements gets out of line with what is correct, you may have a coating failure. It may show up as insufficient coverage, webbing of the coating between shelf rods, serious reflows, or something else more or less serious.

After the coated work leaves the dip tank, it moves over drain pans and enters the "detearing" room where it passes over two electrostatic detearing grids. Here the clinging tear drops and fat edges of coating material that hang from the lower edges of dipped shelves are removed electrically. It has been found that from 8-in. to 10-in. from the bottom edge of the shelves to the top of the electric grid is the most efficient operating distance. If the distance is less than

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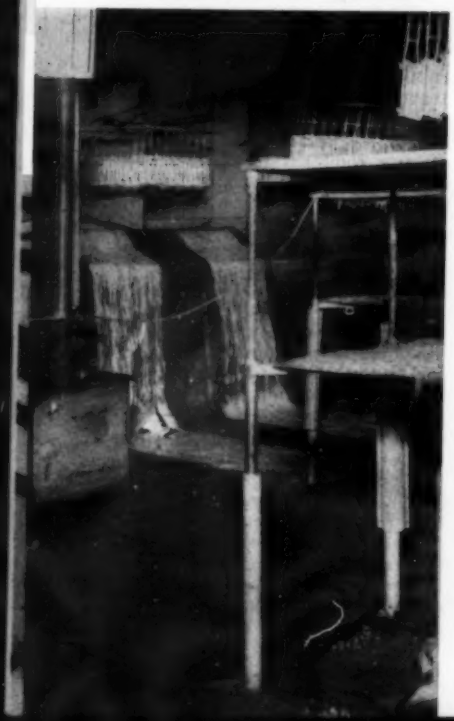
8-in. there may be excessive arcing of static electricity across the field. If the distance is greater than 10-in., the field of attraction is reduced to the point where it is less effective. Later, in a detailed description of the equipment, I will explain how this is accomplished.

Following dip-coating and detearing, the coated shelves enter the first-coat curing oven where the first plastic coat is cured for 30 minutes at 320° F. Then, for about 10 minutes, they pass through cooling tunnel No. 2 wherein their temperature is reduced to approximately 110° F.

Fig. 5—(Below) Some of the electrostatic detearing equipment appears in the foreground. Loaded overhead conveyors are in the background.

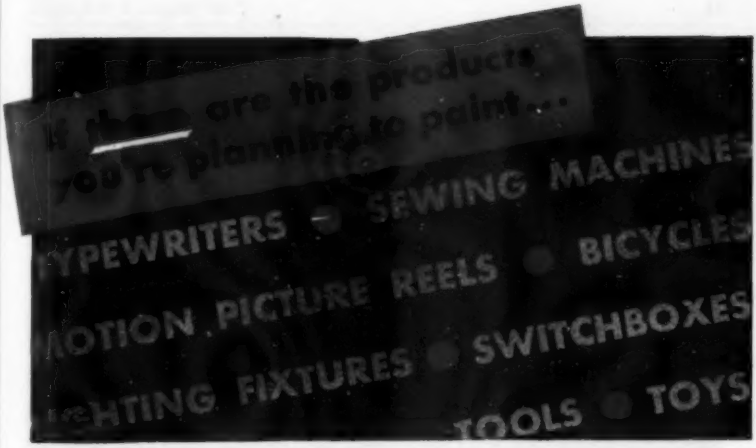


Final Dip Coat, Followed By Same Routine

Again following their line of travel by conveyor, as shown in Fig. 3, the shelves are carried through a finish-coat dipping tank, then over drain pans, over two detearing grids, and into finish-coat curing oven where the final coating is cured for 30 minutes at 300° F. The hot shelves then pass through cooling tunnel No. 1, where their temperature is again reduced to approximately 110° F. Now, by following the circuitous route outside the ovens, as indicated in Fig. 3, the bake-coated shelves may be removed comfortably with bare hands at the unloading station.

In order to reduce the surface contact between each shelf and its hangers to an absolute minimum, the shelf bars are suspended from (or they rest upon) the sharp edges of corrugated fasteners which have been spotwelded to hangar arms, as shown in Fig. 2. Upon removal at the unloading station, the operator touches up by hand the two knife-like marks which remain on the under side of the top of each shelf bar. Then the shelves are packaged for shipment.

The alkyd-urea formaldehyde-base coating material and solvents are poured from drums into two 60-gallon mixing tanks located in the mixing room. A power agitator inside each mixing tank is driven by a compressed-air motor. When mixed, the material is drawn out and forced through horizontal-plate-type filters, using copper screen as a filtering medium, in the following order: 150-mesh, 250-mesh and 320-mesh per inch. After it passes through the filters the material is pumped into the dip tanks. When the top level of material in the dip tanks has reached



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Close-up of shelves entering the tank full of white coating material. Notice that shelves enter the coating material edgewise. The narrow drain pan that follows under conveyor chain appears in upper left. Nozzle of Foamite pipe (for fighting fire) appears at lower right of picture.

its proper height the mixing tanks are by-passed and the coating material is constantly circulated through pumps and filters, thereby maintaining clean tanks and clean well-agitated material.

Mixing Tanks; Filters; Dip-Tank Safety Features

Each dip tank holds about 1200-gallons of material. The bottom of each tank slopes toward a center drain which is connected by an 8-in. pipe to a 1500-gallon tank underground. A heat-actuated safety device controls a quick-opening valve by which the tanks may be emptied in about two minutes. This same heat-actuated device controls a tank nozzle system pressurized with Foamite.

Explosion proof lights are used all through the finishing department. Space around the dip tanks and drain pans is enclosed with metal panels to prevent air currents from sweeping across the freshly dipped pieces; and this helps to minimize the evaporation loss of solvents from the dip tanks.

The electrostatic detearing equipment shown in Fig. 5 is powered by a pack which converts 220-volt alternating current to an 85,000-

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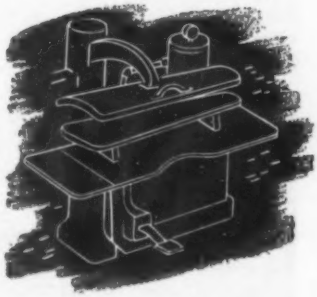

APPLICATION:

Single spray coat produces solid, durable covering on wood, sheet metal or steel castings. Can be dipped in most cases.

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volt static field which is controlled by the size of the wire grid to which the pack is connected. As before stated, a distance of from 8-in. to 10-in. has been found to be the most effective detearing range.

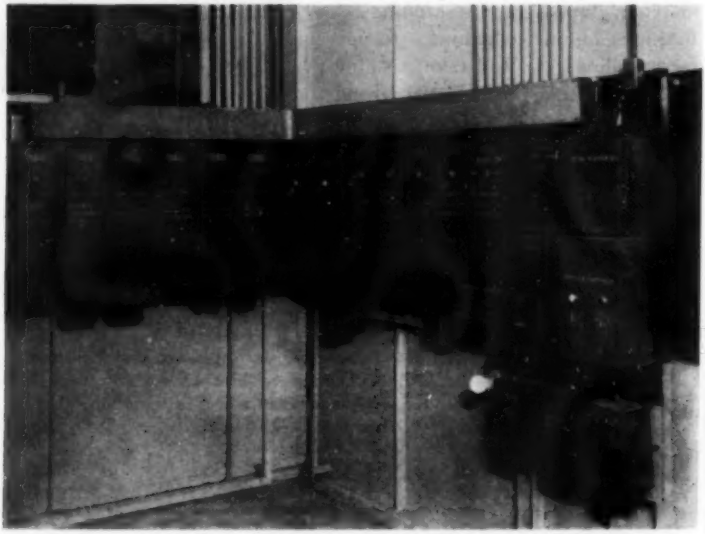
To provide an easy but positive means of quickly adjusting the electric grids to suit the varied lengths of accessories hanging from the conveyor, each grid is mounted on insulated air cylinders and separately controlled by hydraulic cylinders operated from a central control room. An operator in the control room makes the electrostatic field adjustments by observation through the plate glass panel.

At rare intervals the static field above the grids will arc across to accessories suspended from the grounded conveyor. However, the coating film is not marred by this electric arc, and all danger from fire (due to igniting of solvent vapor concentrated around the finished items) is eliminated by an air exhaust over each grid; this exhaust maintains an air flow velocity of 100-ft. per minute.

To give some idea of the power of the electrostatic field. particles of dust, grease, etc., accumulate on the control room side of the plate glass panel—and this glass is 6-ft. from the nearest grid. Solvents are dispersed in this field. Solid pigments that accumulate on the grids necessitate a changing of grids every other day.

Ovens; Cooling Tunnels; Conveyor

The hydrogen relief oven is 22x 14x6-ft. It is heated by a low-pressure direct gas-fired heater. Temperature uniformity is main-



In control room—controls of various equipment in the finishing department.

Speed Up Your Painting

with

ECLIPSE

Low Pressure Spray Equipment

A large machinery manufacturer reports the following improvements attained by a change to Eclipse Low Pressure Equipment.

1 . . Spraying time cut 50% on motor generators, armatures, panel and switch boxes, guards and sheet metal parts.

2 . . Without excessive thinning a heavier black enamel than formerly used produces a superior one-coat finish.

3 . . Spraying motor setups with a very heavy finish coat was cut from 31 minutes to 4 minutes per piece with an Eclipse GAT.

Write today for an Eclipse Engineer to show you how similar results can be attained in your own plant.

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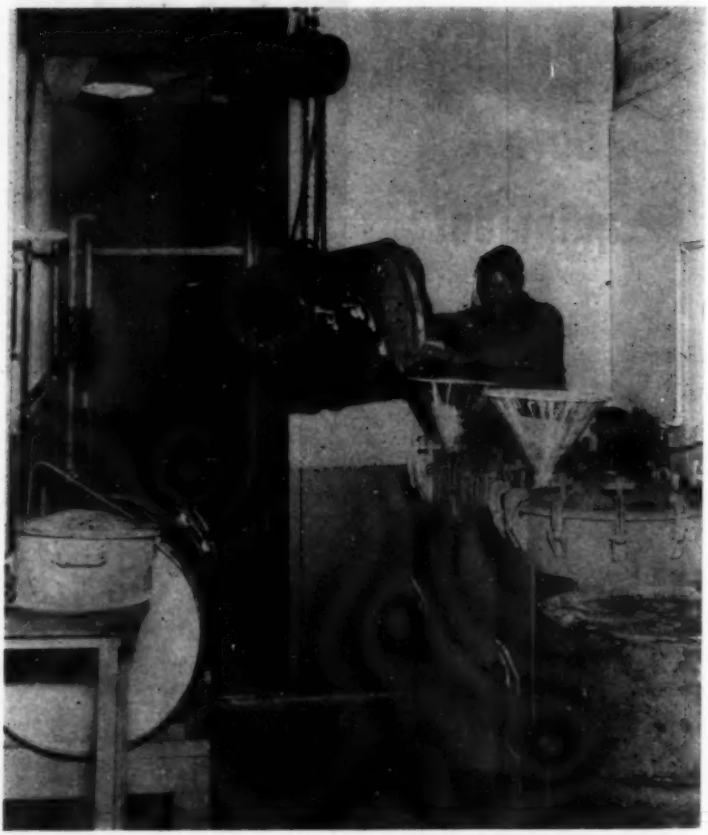
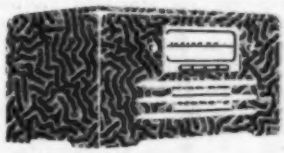
tained by a large recirculating fan, part of which appears in Fig. 1. Positive exhaust is accomplished by a separate fan.

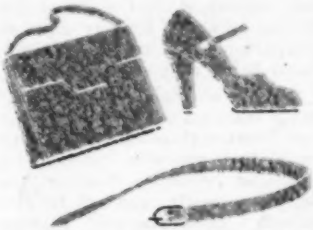
The first-coat and finish-coat curing ovens are each 60x20x8-ft. They are A-type ovens heated with 175-lbs. of steam which passes through coils built into the duct system. Uniform temperature is maintained by 10,000-c.f.m. recirculating fans in each oven, while positive exhaust is attained by 2000-c.f.m. fans. Correct operating temperatures are maintained by automatic controls, and all ovens are equipped with visible recorders.

Cooling tunnels are constructed of interlocking steel panels—and to achieve the greatest efficiency,



In the mixing room a workman is pouring contents of drum into mixing tanks.





Finish it in WRINKLE—you name the color!

What about your product? If eye appeal is important, Wrinkle finish *in color*—primary, tint, pastel or combination—may be just the eye-catcher you seek.

There are other benefits to recommend it: adaptability to surfaces ranging from very flexible fabric to rigid sheet metal, the economy of using only one top coat.

Further, Wrinkle provides a beautifying protective coating for castings or weldments *without* complete finishing—an additional production saving. It is extremely durable—does not chip or peel.

Approximately 200 leading paint and varnish plants manufacturing Wrinkle under our license can supply you with Wrinkle coatings in an endless variety of textures, patterns and colors, tailored to your requirements.

Write for "New Wrinkles in Finishing," a bi-monthly report on developments in the Wrinkle field, listing these suppliers.

Wrinkle

NEW WRINKLE, INC.
Offices and Research Laboratories
1761 Springfield St., Dayton 3, Ohio

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cold air is brought in from the outside through electrostatic filters and blown through the tunnels opposite to the direction of conveyor travel. In order to reduce the temperature of shelves and other work in process to approximately 110° F., cooling tunnel No. 1 requires 20,000-c.f.m. of 100° F. air, and tunnel No. 2 requires 10,000-c.f.m.

The 1000-ft. conveyor system is built of 4-in. monorail; under it is a No. 458 chain driven by a variable-speed mechanism. Trolleys are spaced on 16-in. centers, with master hangers on 32-in. centers. With a conveyor speed of 6-ft. per minute, eight employees (direct labor) attend to the complete coating of 1000 food shelves per hour. In two shifts enough shelves are finished for 1400 refrigerators. Rejects average less than 2%.

Editor's Note: This is the second of three articles by Mr. Wright. In the third and final article, which will appear next month, he describes the air-filtering system. He calls attention to the merits of a pressurized finishing room and emphasizes the need for coordination of effort to get a good finish.

Coating Interiors of Tank Cars

BEFORE TANK cars can transport vital liquids, quickly and uncontaminated, to all parts of the nation, they must be designed to rigid engineering specifications. Construction is planned and protective coatings are carefully selected to enable these cars to withstand the punishment administered by frequent switching, high speed runs, inclement weather conditions, and corrosive products carried.

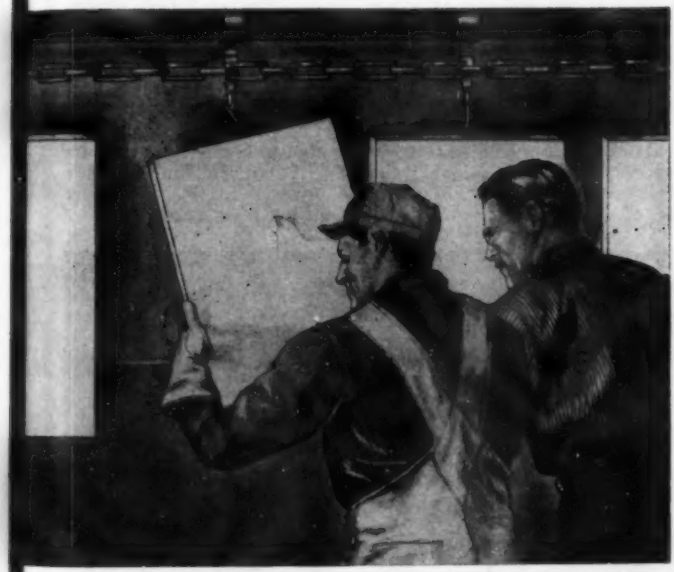
In the past, most of the tanks used on railroads have been manufactured of heavy steel plates, riveted together at the seams and transported on standard railway carriages. Many of these tanks have single domes or are single compartment units with an average capacity of 8,000 gallons, while other cars, produced for the specialized transportation of wines and invert syrups, are constructed with three, four, and six compartments. To guard against product contamination, each compartment has separate dished walls so that in the event of leakage only one compartment is involved and the fluids being carried do not mix.

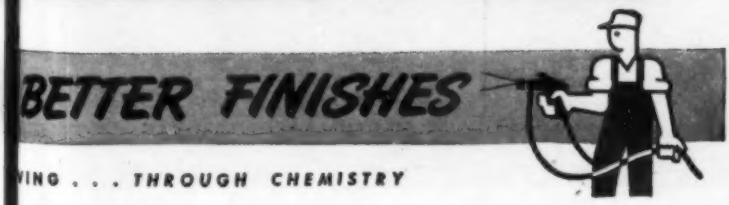
Today, welded construction is being featured prominently in tank cars because these cars are easier to clean, they minimize content seepage, and protective coatings may be more easily applied to their smooth uninterrupted surfaces. This last factor is an extremely important design consideration, *since coatings are a definite part of the structure and should be planned as such to achieve the maximum efficiency.* Over the years, Lithcote finishes, which are based on Bakelite resins, have performed an enviable service in both types of tank car construction, riveted or welded.

Since these coatings were first applied to a tank car in 1937, they have provided dual protection for both the tank car and its contents. The hard, dense, impermeable surface of these finishes forms an impervious barrier against corrosion, and protects the tank against subsequent pitting and leakage despite the attacks of acids and corrosive chemicals.

During the past eight years, tank cars coated with these finishes have traveled almost half a billion

GUE in the paint shop





VING . . . THROUGH CHEMISTRY

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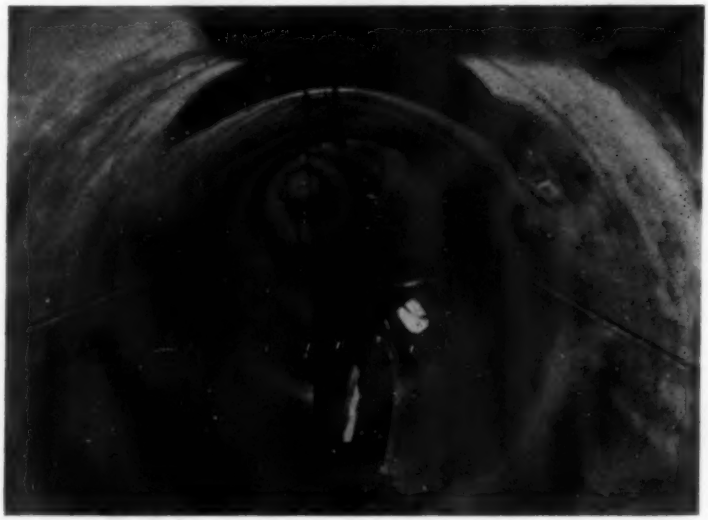
ton miles. Yet, Lithcote linings remained unaffected by the variety of liquids carried and were reapplied only because of wrecks or damage to the tanks themselves. Because of the continuous nonporous film produced by these coatings, tank car contents such as latex, formaldehyde, and other chemicals, wines, mineral oils, invert sugar, corn syrup, and transformer oils are protected against iron contamination, rust, grease, and dirt. Cleaning problems also have been further simplified by the use of these coatings since steam sterilization can be readily accomplished without damaging the coating surface.

Lithcote finishes are solutions of Bakelite phenol-formaldehyde resins in a balanced mixture of solvents. In processing, certain plasticizing resins are introduced with an addition of quartz, and ground into the coating in porcelain lined ball mills. The addition of the quartz increases the resistance of the coating to heat and acids (except hydrofluoric), and increases adhesion.

In routine operations, the coating is applied only to sandblasted surfaces. *The purpose of sandblasting is to clean the metal thoroughly and to provide a "tooth" for sufficient adherence of the Lithcote lining.* In effect, the lining, after being properly applied and baked, becomes firmly welded to the metal. Tanks that have been in service before the coating is applied, are pre-baked to high temperatures before sandblasting. Prebaking induces exudation of whatever liquids are not removed from seams, pits, and corners by steam cleaning. Often the high temperatures involved in this prebaking

(Continued on page 136)



Spray-coating interiors of tank cars. Photo, courtesy of Bakelite Corp.

EXPERIENCED MEN TO SOLVE YOUR

Finishing Problems!

Introducing—

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Yarnall's Western North Carolina, South Carolina and Eastern Georgia Territory is covered by Vernon G. Avery who has been in the Protective Coatings Industry for 26 years. He joined the Yarnall organization in 1920, is married to Florence Potter Avery and has two children, Ruth and Glenn.

Mr. Avery served his country in World War I and his long experience in the industry makes him invaluable to both Yarnall and their customers.

His hobbies, as all who know him will attest, are hunting and fishing.

Men like Vernon G. Avery, with this full measure of knowledge and experience—backed by the Yarnall Organization, with the Creative Ability and Manufacturing Efficiency which has earned for them a Sixty-one year old reputation as "a good house with which to do business," stand ever ready to serve you.

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YARNALL INDUSTRIAL FINISHES

WRINKLECAST — HAMMERCAST — FLOCK ADHESIVE UNDERCOAT — YARLITE BAKING ENAMEL — YARBRITE TOY ENAMEL — YARLAST EXTERIOR ENAMELS — EMBOSSING FINISHES — LUMINOUS FINISHES—WOOD & METAL PRIMERS—DIPPING & SPRAYING ALUMINUM.

For Durability, Beauty and Protection— for Faster and More Economical Application, use —

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Striping an arrow as it rotates in special lathe. Notice steady-rest formed by two ball-bearings.

Striping ARROWS

-BY
WILEY H. WILCOX

Production Superintendent of Indian Archery & Toy Corp. tells how the crests or color bands are expertly painted on wood arrows at special lathes.

ARROWS used in modern archery are generally crested—that is they have bright painted rings near their vanes, so that when two or more archers are shooting at the same target, each one can identify his arrows. In the interest of professional appearance, all arrows of a set are striped uniformly so they present a neat attractive appearance when several are held together or placed in a quiver.

Take as an example a typical arrow from the thousands made every day at the Indian Archery & Toy Corp's. factory in Evansville, Ind. It is a straight wooden shaft 10/32-in. in diameter and 24-in. long. Its crest includes two wide bands of red, each band having a pencil width black border stripe. Between the two wide red bands is a 3/16-in. black stripe flanked by two pencil stripes of black. Other arrows carry only two wide stripes in contrasting colors, such as blue and white, or yellow and black.

Arrows Rotate in Lathes; Stripes Applied with Brushes

Girls sitting at worktables paint these stripes as the arrows rotate in a lathe in front of them. The headstock of each lathe is geared down to a speed of about 250-r.p.m. and belted to a ¼-hp. motor. All

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Girls at work striping new arrows. Notice the drying racks at each lathe.

moving parts of the lathe are fully protected by safety shields to prevent injury to operators through any accidental catching of their clothing or hair in unguarded moving parts.

The headstock of each lathe has a metal bushing into which is inserted a rubber suction cup which has a 3/16-in. hole to receive the nocked end of an arrow. Arrows can be inserted and withdrawn from this headstock without stopping the lathe.

A Pair of Ball Bearings Makes V Steady Rest

The pointed end of the arrow isn't centered in a lathe tailstock; in fact, there is no tailstock. Within about 6-in. of where the tailstock would be, there is a ball bearing steady rest. The rest consists of two ball bearings mounted like two wheels in tandem; that is close together and following one another. The V formed by their flat rims, which almost touch, serves as an ideal steady rest into which the shaft of the arrow rests while it rotates. To prevent the free end of the arrow from vibrating or flopping around crazily out of control, the girl operator places her left hand lightly over the arrow shaft where it projects beyond the ball bearing steady rest.

Extending along parallel to the arrow, but back of it, is a marked gauge which shows the location and width of the bands and stripes to be painted on arrows at the lathe. In front of each operator there is a series of notched racks into which newly striped arrows are placed to rest while the paint dries. We have found that a spindle of 250-r.p.m. is the most satisfactory to use on our work. At this speed the centrifugal force

Twin brush developed for painting two wide color bands at a time.

YOU CAN'T SOLVE YOUR FINISHING PROBLEMS THIS WAY!

Pedigree makes many kinds of finishes—makes them exceedingly well—for the specific purpose of helping you to make your product more saleable, to make it better, to make it more economically.

In addition to an extensive list of standard finishes, Pedigree maintains a staff of technicians with years of experience in many fields and with unsurpassed research facilities at their command to assist you in developing any type of special finish you may require.

Crystal-gazing won't solve your finishing problems but Pedigree "know-how" is at your service for promoting sales and reducing costs by providing a better protective coating for your products. Write without obligation.

The

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counteracts any tendency toward capillary attraction, and as a result we get sharp well defined stripes, which are quite important.

Rubber Suction Cup in Headstock Holds Arrow

A rubber suction cup in the headstock will last long enough for about 10,000 arrows to be striped. Then it becomes so worn and enlarged that it must be replaced with a new one. It will last a long time if the operator is experienced and careful in using it. The correct technique is to be quick with a light firm grip when inserting the head of the arrow into the rubber cup. Once it is inserted it must be immediately released so it can rotate freely. If the operator allows the rubber cup to revolve around the fixed head of an arrow, this naturally wears the rubber cup excessively, and before long it will not grip an arrow tightly enough to turn it.

Here's another point: It is best to avoid using any oil on the ball bearings which form the steady rest. These bearings are "open", and dust, dirt and lacquer can accumulate in them. A few drops of lacquer thinner on the bearings is all that is required to lubricate them, and this helps to keep them reasonably clean.

Colored brushing lacquer, mixed to a rather high viscosity, is used for painting the stripes. The lacquer is kept in small open cups on the worktables. Thinner is added and stirred in from time to time to maintain correct viscosity.

Colored Brushing Lacquer and Special Brushes

Formerly we used single brushes to apply all stripes—flat brushes for wide stripes, and knife-edged brushes for making pencil stripes and borders. The knife-edged brushes are still used, but we are now making use of double brushes to paint the wide color bands.

The two brushes of a double brush can be used to lay on the same color or two different colors. When the operator has to paint a band wider than the width of the brush, she starts each brush at the middle of the space allowed for the respective color bands. She carefully moves the brushes to right and then to left to widen the bands to the desired width.

Referring again to the arrow shown at the beginning of this article, the wide red stripes were applied with a double brush. The 3/16-in. black stripe, the two black pencil stripes, and the black border lines were all made with the same knife-edge brush. To make the 3/16-in. black stripe, the brush is moved from right to left until the correct width is obtained. All brushes used are always narrower in width than the stripes or bands to be painted; it is only by this means that accuracy and neatness can be maintained.

For Steam Cleaning

An entirely new type of detergent for use in steam cleaning has been developed by The Penetone Co., Tenafly, N. J., manufacturer of "controlled quality" chemicals for over a decade. The new cleaner is a liquid compound, water-soluble, which possesses exceptional advantages over powders generally used for the purpose.

Goldenhill Represents Hilo in West Connecticut

Having completed a familiarization course of products at the Research and Development Laboratories, Robert Goldenhill has been assigned to the Western Connecticut Industrial Sales territory for the Hilo Varnish Corp., Brooklyn, N. Y. Goldenhill holds a B.S. degree in Chemical Engineering and during the war served as a captain with the Army Air Forces.

True quality finishes are characterized by satiny smoothness, *not* high gloss.

Lacquers, paints and varnishes incorporating Santocel are preferred in growing numbers of fine finishing operations today, for just that reason. With Santocel it is possible to achieve the quality delustered appearance of hand craftsman finishes, with mass production techniques, at mass production costs.

Better investigate this unique silica aerogel flatting agent now. Full technical data, samples and expert counsel on your particular problem may be had by addressing: MONSANTO CHEMICAL COMPANY, Merrimac Division, Everett Station, Boston 49, Massachusetts.

*Six Other Superiorities are:

1. Clarity
2. Increased Surface Hardness
3. Mar Resistance
4. Heat Resistance
5. Flexibility
6. Better Adherence

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Tinting and Mixing Colors

THE following information on tinting paint and enamel colors has been compiled by the National Paint, Varnish & Lacquer Association, Inc. It is presented here for the benefit of those who may have occasion to mix materials to produce special colors in paints and enamels.

Blue, Delft—Add Cobalt blue and a touch of lampblack to white.

Blue, Gray—Add Prussian blue and lampblack, or, for a livelier color, Prussian blue and some orange chrome, to white.

Blue, Pale—Add a very little Prussian blue to white.

Blue, Deep—Add more of same color.

Brown—Add Venetian red, if red brown is desired, to burnt umber paint. Add white if a lighter brown is wanted.

Brown, Cinnamon—Add raw sienna and golden ochre to white, more sienna than ochre.

Brown, Light Yellowish—Add chrome yellow and burnt umber to white.

Brown, Reddish—Add burnt umber and Venetian red to white.

Buff—A little raw sienna added to white makes an interesting buff.

Coral—Add chrome yellow medcum and a little vermillion to white.

Creams—Pale, light and dark creams can be made by adding raw sienna to white paint or enamel. Vary the amount to suit your color preference.

Cream, Grayed—Add a trace of lampblack to cream,

Ecru—Add medium chrome yellow and a little toluidine red to white.

Fawn—Add burnt umber and yellow ochre to white.

Gold, Dull—Add considerable light chrome yellow and a little Venetian red to white.

Gray—Add lampblack to white, very gradually until you obtain the desired shade.

Gray, French—Add Prussian blue to gray.

Gray, Limestone—Add raw sienna and raw umber to white.

Gray, Mauve—Add rose lake and some cobalt blue to white; gray off with a trace of lampblack,

Gray, Pearl—Add chromium oxide (green) and iron oxide (red) to white.

Gray, Silver—Add a trace of lampblack and raw umber to white—and, if you prefer—a trace of raw sienna also.

Gray, Stone—Add raw sienna and raw umber to white.

Green—Medium chrome green and medium chrome yellow added to white in varying amounts to get desired depth of color.

Green, Adam—Add medium chrome green and a little Chinese blue to white.

Green, Apple—Add light chrome green and orange chrome to white.

Green, Blue—Add Prussian blue and chrome green to white, in varying quantities to produce light, medium or dark, as desired.

Green, Gray—Add Prussian blue and chrome greed to white, in varying quantities to produce light, medium or dark, as desired.

Green, Jade—Add considerable chrome green, a little Prussian blue, and a little Venetian red to white.

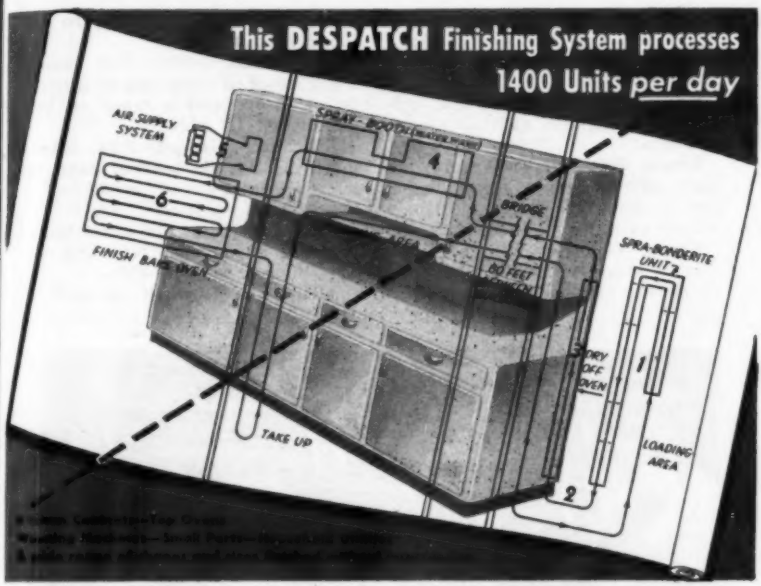
Green, Nile—Add Prussian blue and emerald green to white—about three times as much color as white.

Green, Olive—Add chrome yellow and lampblack to white.

Green, Pale—Tint white with chrome green medium and a touch of chrome yellow medium. For a

(Continued on page 86)

This DESPATCH Finishing System processes 1400 Units *per day*



Difficult Space Problem Solved by DESPATCH Engineers

Utilizing 2 buildings, the roof of a third and crossing a 60 ft. street, Despatch engineers designed and installed this endless conveyor finishing system that produces 1400 units per day. The conveyor alone is over 1000 ft. long.

SINGLE PLAN—SINGLE RESPONSIBILITY

This manufacturer got a complete finishing system that cuts costs to a minimum by having Despatch specialized engineers do the entire job of designing and installing the system to fit his production requirements and plant facilities.

You too, can profit by having Despatch engineers take the full responsibility for planning and installing your finishing system. Then you get space saving lay-out—efficient conveyor route—proper selection and arrangement of component parts to make a unified system that gives maximum production at a minimum cost.

Send this coupon for details ▶▶

All of the equipment for this new finishing department was planned, selected and installed by Despatch engineers. Individual items, numbered to correspond with the floor plan, include . .

1. **SPRA-BONDERITE UNIT**—A 6-stage unit.
2. **AIR BLOW-OFF**—Removes surplus moisture.
3. **DRY-OFF OVEN**—Dries completely following Bonderizing.
4. **SPRAY BOOTH**—Water wash type, working length 50 feet.
5. **AIR SUPPLY UNIT**—For supplying air to spray booths.
6. **BAKE OVEN**—Despatch direct gas-fired oven, approximate length of travel 225 feet.

Work stays on same monorail conveyor; eliminates manual handling.

DESPATCH OVEN COMPANY
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DESPATCH OVEN COMPANY
619 SE 8th Street, Minneapolis 14, Minn.

☐ Send more details about Despatch's engineering service in supplying Finishing System equipment.

☐ Please survey our plant without obligation and recommend new equipment for our Finishing Department.

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deeper green, use the same tinting colors but larger quantities.

Green, Sea—Add deep chrome green to white.

Green, Soft—Add chrome yellow, chrome green, and raw sienna to white.

Green, Soft-Yellowish—Add medium chrome green, raw sienna, and a trace of medium chrome yellow to white.

Green, Yellow—Tint white with chrome green medium and a touch of chrome yellow medium, varying the quantities of yellow to get the desired shade.

Ivory—Add a little raw sienna and a trace of vermilion or a little yellow ochre and a trace of Venetian red to white.

Lavender, Grayed—Add ultramarine blue and madder lake to white, graying it off by adding a little chrome yellow.

Lavender, Pale—Add about three parts of ultramarine blue and one part madder lake to white.

Lilac—Add a small amount of

Clean parts about to be unloaded from Wheelabrator Tumblast after three minutes exposure to grit blasting. Photo, American Foundry Equipment Co.

Get This Helpful Booklet on

Cellusuede FLOCK

An interesting and colorful booklet on their product has been prepared for your information and convenience by the makers of Cellusuede Cotton and Rayon Flocks. Brief, clear explanations give all the facts you'll want to know about this versatile coating material; what it is made of; how it is applied; how it can be used. In the pages of this booklet you may find the answer to one of your manufacturing problems. You will be interested, too, in the colorful and unique application of Cellusuede on the booklet cover. Write for your copy.

Color Card, Samples, Prices Free on Request

CP Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

ultramarine blue and rose madder to white.

Maize—Add a medium chrome yellow and some lemon chrome yellow to white.

Maroon—Add Venetian red, a little black, and a trace of Prussian blue to white.

Orange, Grayed or Burnt—Add vermilion and chrome yellow to white. Gray it off with a trace of Prussian blue.

Orange, Pale— A small amount of vermilion and chrome yellow added to white makes pale orange.

Orchid—Wisteria and lavender are basically violet-red. They can be mixed satisfactorily from white and rose pink.

Peach—Add chrome yellow and a little vermilion to white.

Pink—Add a small amount of vermilion to white.

Red, Brick—Add considerable Venetian red and about half as much Indian red to white.

Red, Dark—Add a bit of lampblack to brick red.

Rose—Add vermilion, turkey red or rose lake, very little at a time until you get the desired shade.

Salmon—Add considerable deep orange chrome to white. To meet some preferences, it may be necessary to add a trace of Prussian blue to gray it off slightly.

Sand—Add yellow ochre and a trace of black and vermilion to white.

Tan, Creamy—Add a little raw sienna to burnt umber and white.

Tan, Pale—Add a small amount of burnt umber to white.

Topaz—Add orange chrome yellow or chrome yellow medium and a little vermilion to white.

Yellow, Colonial—Add French ochre and medium chrome yellow to white. Use approximately twice as much ochre as chrome.

Yellow, Orange—Add chrome yellow medium and a very little vermilion to white.

Yellow, Pale—Add small amount of chrome yellow or medium to white.

When mixing colors, be sure to add the tinting colors little by little until the color is right—and then stir the mixture long and thoroughly to eliminate possible streakiness in the tinted paint.

S. H. Bivins Becomes Detrex Western Regional Manager

The appointment of S. H. Bivins as manager of Detrex Western Regional Industrial Sales is announced by W. F. Newbery, industrial sales manager of Detrex Corp., Detroit 3, Mich., manufacturer of industrial cleaning equipment and chemical cleaning compounds.

Since joining Detrex in 1936, Mr. Bivins has been divisional manager in Milwaukee and St. Louis. Until his recent appointment, he held the position of Divisional Manager in Ohio, working out of the Cleveland Office.

Mr. Bivins, whose headquarters will be in Chicago, Ill., will bring to his new post a knowledge of a wide range of cleaning applications, having had years of experience in both the solvent degreasing and alkali phases of industrial metal cleaning.

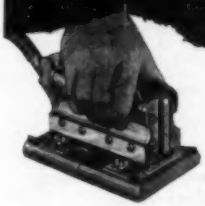
Egyptian Lacquer Occupies New Building

Mr. O. J. S. deBrun, President of The Egyptian Lacquer Mfg. Co., announces that the new Egyptian Lacquer building in South Kearney, N. J., is now occupied by the sales, advertising and accounting departments of the company. The move was made on April 19. The Executive headquarters of the company, however, remain in Rockefeller Center, New York City.

The new Egyptian Lacquer building is a thoroughly modern office structure which has been erected on the Egyptian Company's present factory site at South Kearney. When this structure is occupied by the sales, advertising and accounting departments, the company's objective to have these departments in proximity to the company's chemical laboratories and manufacturing buildings will have been attained.

if YOUR WORK INCLUDES SANDING

. . . GET THIS FREE DEMONSTRATION OF A SUNDSTRAND PORTABLE SANDER



In your own plant and on your own jobs see for yourself Sundstrand's pneumatic sanders in operation . . . sanding quicker, producing better finish with less operator effort. We will arrange for a free "on-the-job" demonstration.

See these powerful, pneumatic machines sanding flat or curved surfaces on every kind of finishing operation in your production or maintenance work.

See how fast these easy-to-handle light weight machines are . . . attaining pad speeds up to 3,500 oscillations per minute.

See how Sundstrand's "opposed pad reciprocation" eliminates vibration. Write today for a Sundstrand representative to come to your plant.

OPPOSED PAD RECIPROCATION

Continuous heavy vibration in sanders tires operators, slows production, cuts profits. Sundstrand's opposed pad reciprocation cancels end thrust, thereby modifying tiresome vibration. Easily guided, it follows grain structures smoothly . . . with little operator strain. Write today for complete detailed information. Ask for bulletin No. IF-6.

OVER 30 YEARS EXPERIENCE MANUFACTURING PNEUMATIC SANDERS

SUNDSTRAND MACHINE TOOL CO.

PNEUMATIC MACHINE DIVISION

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Letters from Readers

Dustless Spray Painting

I am writing for information about dustless spray painting. We have heard about a Norris electric sprayer, but have not been able to get any direct information on same. I have been doing commercial spray painting for over 35 years in this section of the country (New Haven, Conn.) and I want to be able to offer the best service possible to my customers.

Several concerns in this area are interested in having their plants redecorated, but they want it done with the new dustless sprayer because of the elimination of fog.

We have one job now that calls for dustless spraying. We would appreciate it very much if you would give us all the information you can on this sprayer, and let us know if it is possible for us to get one.—Conn. Painting & Maintenance Corp.

The latest information we have on this is that it is no longer made. Our reference card shows that this was originally made by Electrical Painting Equipment Co., Inc., 513 Grand Central Palace, New York, N. Y. That was about 13 years ago. Later it was manufactured by Jas. H. Matthews & Co., 3942 Forbes St., Pittsburgh, Penna. That was about eight years ago. A notation on our card "no longer made", is dated June 28, 1944.

Can some reader add anything further about the Norris painting machine, or any similar equipment?—Ed.

Can Supply Venetian Blind Coating Machines

We have noted many requests in your publication for names and addresses of firms who can furnish enamel roller coating machines. This will advise you that we are prepared to furnish enamel roller coater machines of the type used in the Venetian blind industry and, simultaneously coat, in one operation, the four surfaces of Venetian Blind slats.

The machine is adjustable to the extent that variations and thicknesses of lumber to be run through can be readily accommodated. Lengths are no problem; the feed is automatic and positive.—Swedish Venetian Blind Corp., North Bergen, N.J.

Infra Red vs. Convection

In September 1945, you ran an article in Industrial Finishing, entitled, "Infra Red vs. Convection Ovens for Drying Paint Coatings". We are very much interested, at this time, in revamping our finishing setup, and I would like to obtain a copy of this article. Would it be possible to send me tear sheets.—W. & T. Co., Attention D. W. H. Assistant Design Engineer.

Tear sheets are being sent.—Ed.

Detachable Button Article

Please send me tear sheets on "Finishing Detachable Buttons" by Arthur A. Oertel, which appeared on pages 60, 62, 64 and 66 of the March 1946 issue of Industrial Finishing. If tear sheets of this article are not available, please send a photostatic copy and bill us for the cost of the reproduction.—A. F. E. Co.

Tear sheets sent.—Ed.

Cellophane Spangles and Silver Tinsel

In looking through the April issue of Industrial Finishing, I noticed in "Letters From Readers" a request from the R. W. Co., as to how they can obtain a crystalline snow effect. In the May issue of this magazine under "Questions and Answers" this request was answered by Cohagan.

We would appreciate knowing the name of R. W. Co., so that we can write them pertaining to our Cellophane Spangles and Silver Tinsel, which they can use in their process of making a crystalline snow effect.— Edward C. Ballou Co.

Information supplied.—Ed.

Surplus Items for Sale

From time to time we have small lots of nails, screws and other furniture hardware for which we have no further use. These might be of use to some other manufacturer. It would be nice

HOT

AND IN
A HURRY

.....to speed up production schedules

WITH HOT LACQUER you need only half the usual number of coats. It contains more solids . . . gives better cover. Heat is used to reduce viscosity, allowing the lacquer to be sprayed on thicker . . . hence a coat of hot lacquer has the hiding power of several ordinary coats—saves time, labor, and materials. Ask your supplier about the Commercial Solvents Hot Lacquer process.

CSC makes no lacquers or thinners but supplies solvents and plasticizers to manufacturers of protective coatings.

CSC

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Corporation

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if you added a column in one of your magazines where items of this character could be posted and where the purchaser could obtain them at a discount which would not be excessive, making the transaction mutually profitable and without excessive selling cost to the seller.—Colony Furniture Co.

We believe that this falls in the category of Classified Advertising, such as you find in the last pages of any copy of the magazine. The rate for insertion of classified advertisements is low—only 50c a line (minimum insertion, $1.50).—Ed.

Fish Lure Finishing

Referring to the letter which is published in February 1946 issue, page 102—the reply of the X. Co. to the inquiry of F. F. Co., in regard to "Fish Bait Finishing"—please send us the address of the X. Co. We are interested in obtaining a good waterproof lacquer for finishing cork body bass bugs.—Joe's Tackle Work Shop.

It is Zapon Division of Atlas Powder Co. (Attn: R. J. Fairburn), North Chicago, Ill.—Ed.

University Training

Some time ago I saw in a magazine that the University of Michigan was opening a branch to train practical furniture men, but I cannot recall in which magazine I saw this news. I am under the impression that it was in your Industrial Finishing Magazine. Any information you could give me on this matter will be greatly appreciated.—M. Furn. Co., Quebec.

Write Dr. L. L. Carrick, Chemical & Metallurgical Dept., University of Michigan, Ann Arbor, Mich.—Ed.

Static Electricity

Would you please be good enough to advise the names of manufacturers of a paint system using static electricity?—C. A. Works.

You are probably thinking of electrostatic spraying and electrostatic detearing. Write Harper J. Ransburg Co., Electric Coating Divn., 1234 Barth Ave., Indianapolis 7, Ind.—Ed.

Paint Agitators

Will you please be kind enough to send us the names of suppliers of rejuvenators for paint, or paint agitators both in sealed and open cans, with explosion and non-explosion proof motors?—N. Co.

Try the following concerns:

Miracle Paint Rejuvenator Co., 127 E. 9th St., St. Paul 1, Minn.

Vol-U-Meter Co., 73 Wilbury Place, Buffalo 16, N. Y.

Mixing Equipment Co., 1027 Garson Ave., Rochester 9, N. Y.—Ed.

Tumble Finishing

We are interested in finishing small wood toy parts in a tumble enamel. Recently we wrote to the A. C. Horn Co. regarding our problem and they, in turn, advised us that you had published several articles concerning this method of finishing in your magazine Industrial Finishing. We are eager to secure copies of the articles and are writing to ask if you can help us out.—W. Novelty Works.

Reprints of two articles are being sent you.—Ed.

Zinc Chromate Primer

Once before we asked for tear sheets of a certain article and now again we are in need of several more copies. We would appreciate receipt of these copies of the article by Maxwell Stiles (Facts About Reclaiming Zinc Chromate Primer) in your February 1945 issue.—M. Chemical Corp.

Copies forwarded.—Ed.

Burt's Article Wanted

I am interested in obtaining two copies or reprints of the article, "Putting a Glassy Smooth Finish on the Shooting Star" by Fred M. Burt, in the March 1946 issue of Industrial Finishing magazine, pages 28 to 32 inclusive. If these are obtainable, kindly send them to me at your earliest convenience.—E. B., Metallurgist, Vapor Blast Mfg. Co.

Articles supplied.—Ed.

From Calcutta, India

We thank you for your letter of March 13, which we have just received (May 4). The four copies of the magazine have also reached us and are receiving our attention. They are valuable.

Regarding the names of various manufacturers of finishing products, cleaning materials, ovens, etc., mentioned by you, we are writing to them individually and trust something materially profitable will turn up. Weeks back we received a letter from A. J. Brandt Co., the experts

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RAYON COTTON WOOL

Available in various length fibres. ✓

Particles finely cut, uniform — fluffy yet filling. ✓

Brilliant colors pastel shades . . . also neutral tones. ✓

Industrial uses include soundproofing insulation surface coatings protective finishes, etc. ✓

Decorative Simulations: Suede, velvet embroideries leather and upholstery fabrics. Readily applicable to glass, wood, metal, paper cloth, etc. ✓

Details, samples and prices upon inquiry ✓

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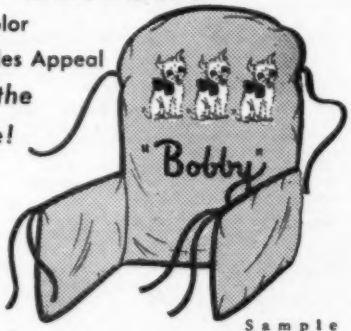
..Add Sales Appeal
..Spare the Needle!



Sample shown, was flocked by Flock Processing Co., Velvetone Div., Norwalk, Conn.

Flocked motifs, such as these on the infant's chair-cushion pictured above, are indicative of the many interesting effects achieved with Claremont Flocks. Baby items, whether of fabric or other substance, readily lend themselves to flock application — and when so enhanced, become distinctive . . . eye-appealing . . . fast-sellers. Flock samples available for experimental purposes. Inquiries invited.

CLAREMONT WASTE MANUFACTURING CO.
CLAREMONT, NEW HAMPSHIRE
The Country's Largest Manufacturers of Flock

on finishing; and a cable from C. R. Syer of Conn., but as no address was available we were unable to contact the latter. Your letter, however, has solved the difficulty. This has proved beyond our expectation, and we take this opportunity of offering our very sincere compliments for the excellent cooperation extended.—Bungo Steel Furniture, Ltd.

Factory Made Homes

Examination of your current mailing card, describing certain articles in the April issue, brought out an article which we had overlooked when reading your copy, which apparently has been taken over by someone on our list of interoffice readers.

I would like to obtain another copy of April 1946 issue, as I am currently interested in information on the use of coated abrasives in the manufacture of prefabricated houses and I am sure the article, "Production Finishing of Factory-Made Homes" will be interesting.—E. C., Behr-Manning Corp.

Copy sent.—Ed.

Black Finishes for Metal

We would appreciate information as to the name of the company that produces the "Ebonol Z" and the "Black Magic" finishes mentioned in the article "Chemical Black & Color Finishes for Metal", in the May edition of Industrial Finishing Magazine.—W. R. B. Corp.

"Ebonol Z" is a product of The Enthone Co., 447 Elm St., New Haven, Conn.

"Black Magic" is a product of Mitchell-Bradford Chemical Co., 2446 Main St., Stratford P.O., Bridgeport, Conn.—Ed.

"Ambroid" Again

We would appreciate any information that you are in a position to give us concerning "Ambroid", and would also l'ke to have the name and address of the manufacturer of this material.—National Pencil Co.

See pages 96 and 98 of May issue of th's magazine.—Ed.

Bleaching Wood

Recently I came across an interesting article written by Mr. Hogstrom. The article was on "Wood Bleaches" and interested me tremendously. I am in the plywood business and am interested in gathering any kind of information possible on various finishes for birch, mahogany, poplar, oak and ash plywood. Articles similar to this one on bleaches are desired. Do you have any such articles in your library? If not, could you recommend to me any titles of books and publishers where I might be able to obtain such knowledge?—M. de R.

We have published several articles on bleaching but they are in such demand that not even tear sheets from mutilated copies remain. You might write L. R. van Allen Co., Chicago 54, Ill.—Ed.

Trick Finishes

I am a reader of I.F. and would like a set of tear sheets of Dr. S. P. Wilson's article on "Trick Finishes", which appeared in July 1945 issue.—F. N.

Will you kindly send me the pages of Dr. S. P. Wilson's article entitled, "Trick Finishes", which appeared in July 1945 issue of your magazine? I lost mine.—E. M.

Drum Spigots

We would like to request your assistance in obtaining a list of manufacturers of drum spigots and molasses gates. We have encountered considerable difficulty in obtaining these items and thought perhaps you may have such a list.—B. Chemical Co.

We suggest that you try the following:
John Sommer Faucet Co., 20 Morris Ave., Newark 4, N. J.
B. F. D. Co., 153 E. 44th St., New York, N. Y.
Vol-U-Meter Co., 73 Wilbury Place, Buffalo 16, N. Y.—Ed.

Detachable Button

In the March issue of Industrial Finishing, an article illustrating the black japanning of a detachable button made by J. V. Pilcher Mfg. Co. is of interest to me. Can you give me the address of this company?—G. E. B.

The address of the J. V. Pilcher Mfg. Co. is 715 E. Gray St., Louisville 2, Ky. —Ed.

Masking Tape

Kindly send names of several manufacturers of masking tapes, masking cones, etc., and oblige.—C. Lawn Mower.

For suppliers of masking tapes, we suggest the following:
Minnesota Mining & Mfg. Co., 772 Forest, St. Paul 6, Minn.
Industrial Tape Corp., New Brunswick, N. J.
For masking cones try, Conforming

Remember Pearl Essence for

A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

THE MEARL CORPORATION

153 WAVERLY PLACE NEW YORK, N. Y.

ROSELLE, N. J. EASTPORT, ME.

Has High Reflective Light Value

For Dials Controls Instruments

WORLD'S LARGEST PRODUCER OF PEARL ESSENCE

Matrix Corp., Toledo Factories Bldg., Toledo 2, Ohio.—Ed.

Graining Equipment

We would appreciate the names of manufacturers making graining equipment—that is stencils, screen process and photographic plate process.—O. C. Co.

Try the following:
Sherwin-Williams Co., Cleveland, Ohio.
Nax-Dar Co., Chicago 10, Ill.—Ed.

"Plastic" Paint

One of our customers has requested a finish in "Plastic" paint or lacquer, probably of vinylite. Will you kindly advise if you know of such a finish and, if so, who manufactures same?—Craft, Inc.

Try any of the large concerns whose advertisements are in this magazine.—Ed.

Adams' Article to Canada

In the April issue of Canadian Woodworker, there appears an article (copied from Industrial Finishing) "Varnishes vs. Lacquers", by Mr. Raymond C. Adams, which proved to be of considerable interest to the writer. Accordingly, I wrote the Canadian Woodworker to obtain Mr. Adams' address and they said he is technical director of the Gilman Paint & Varnish Co. but they could not give me Mr. Adams' address, nor the address of the Gilman Paint & Varnish Co.

If you know either of these addresses, and providing you have no objection to our corresponding directly with Mr. Adams, I would greatly appreciate it if you will send it to me.—J. C. Furn. Co.

Information sent by letter.—Ed.

Striping Machine

We are in the market for a striping device that will put a continuous stripe ½-in. wide on paper traveling through a machine at the rate of 100-ft. per minute. If you have such a unit, please send us literature. If not, will you advise us who we should contact.—F. D. (Designers and Builders of Special Machinery).

We suggest that you contact one or more of the following:
Wendell Mfg. Co., 4234 N. Lincoln Ave., Chicago, Ill.
K. H. Gettner Shop, 4210 Grand River Ave., Detroit, Mich.
Beugler Mfg. Co., 4318 W. 2nd St., Los Angeles 4, Calif.—Ed.

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Sealers

Sealers must seal. *They must also dry rapidly—and sand easily and cleanly.*

STILLE-YOUNG Sealers will build up a basic coat that supports succeeding finishing coats.

We can help you with the type of material that you need—and with the type of service that counts.

THE STILLE-YOUNG CORPORATION
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CRITICAL CONSIDERATION *of our* POST-WAR SHIPMENTS

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EVERY FORMULA IS REVIEWED IN LIGHT OF WAR EXPERIENCE

DOPES · LACQUERS · ENAMELS

RANDOLPH

FINISHING PRODUCTS CO.

rlstadt New Jersey

Questions and Answers

Bonderite Sludge Filter

In the April issue of INDUSTRIAL FINISHING, I am very much interested in the article by H. R. Madson, relative to "Bonderite Sludge Filter." I would appreciate it if you would inform me where I could get in touch with the people who sell this equipment. We are installing a new Bonderite setup, quite large, and I am sure this type of equipment would be very useful to us. I will appreciate any information you can give me relative to this.—*N. Corp., (G.W.P., Plant Eng.)*

Editor's Note: This is just one of many letters inquiring about the "Bonderite Sludge Filter."

The Bonderite sludge filter is "available any time, any where." It is manufactured by M—— S—— Co. However, I am interested in the filter and, until a sales organization is set up, I am making the sales contacts.

The history of the filter is this: During the war I was in contact with Bonderite and other rust-proofing processes. Disposal of sludge was to me a major operation, so I began experimenting with continuous filtering. It soon became evident that the sludge could be readily filtered out of the solution with several types of filters but, in order to get rid of the collected sludge, frequent back washing was necessary. This required considerable fresh water and resulted in clogged sewers.

To avoid these evils, attempts were made to collect the sludge in a dried state. It soon became evident that this was the real solution. Accidentally, I sumbled on to an experimental filter, built for an entirely different purpose. That was the "Vinton" filter. Arrangements were made to have it adapted to filter Bonderite sludge and made up for sale for that usage. One has been field-tested for almost a year.

I want to thank you for the inquiries you have been sending me. I have contacted every one referred to me. I am frankly surprised at the response to the article in your magazine. You have wide coverage.—*H. R. Madson, Industrial Consultant, 670 Euclid Ave., Glen Ellyn, Ill.*

Dry Sealer Coat by "Electronics"?

We manufacture fancy wooden boxes and novelties in wood. At present we have one spray booth and we contemplate installing another one shortly—so that in one booth our products will receive the first coat of sealer, while in the other they will get a coat of lacquer. Having heard of "electronics" which are supposed to dry sealer and lacquer quickly—much better than infra-red lamps—we are interested. Can you enlighten us?

Our intention is to install a conveyor between the two spray

Provocative

Highlight the salient features of your product with a provocative appealing finish. Give it every chance to become the leader in its field.

If, for some reason, your finishing department isn't equipped to handle such an important job, perhaps you need the services of our Creative Studio.

Our artists are qualified technicians whose capabilities are recognized in thousands of finishing rooms throughout the industrial world. Place your problem in their hands, and allow them to conceive a sales-tempting coating for you.

Reputable firms may take advantage of this service at no cost or obligation whatever!

No Tampering with Quality

ROCKFORD VARNISH Company
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

booths on which our goods will travel. When passing under these "Electronics" we believe the sealer coat will dry quickly so that it will be ready for sanding, and then the coat of lacquer in the second booth.

May we ask you where we could obtain further information on these possibilities?—D. Mfg. Co.

Reply by Westinghouse Elec. Corp.:

Our engineers have passed on information which thoroughly discusses the application of electronic heating to wooden articles, for drying paint.

As far as we know, the drying of paint or other similar coatings has not been possible by the use of high frequency. In some cases, it has been possible to dry the paint by generating heat in the painted object which, in turn, dries the paint by virtue of a heated surface under the paint layer, rather than by heat applied externally to the paint surface.

Heretofore, the drying of paint has been a relatively slow process because the paint layer had to dry very slowly from the outside surface through to the center, and finally to the innermost surface of the paint in contact with the object that was painted.

Wood: In the case of wood, attempts to dry paint by applying high frequency has resulted in the wood giving off steam, thereby ruining the painted surface. In other words, all of the heat was generated in the wood and not in the painted surface.

Ceramics or Glass: In the case of these materials, the generation of heat in the material is not always possible. In those cases where heat can be generated, the temperatures obtainable are relatively low and the time required to dry the paint is no better than conventional methods.

Metal: In the case of metals, heat can be generatd very readily by inductive methods. In this case, however, we must guard against heating the metal too rapidly and at too high a temperature gradient, or we may cause the paint to blister.

Thin Materials: Attempts to dry various coatings and/or paint layers on thin materials other than metal, have been not only unsuccessful but costly.

Conclusion: For the time being, we are forced to accept the fact that the drying of paint or other coatings by "electronics" is not practical. In those cases where some degree of success has been obtained, such as on metals, the cost has been much higher than conventional methods and there has been very little if any saving in time for the actual drying operation.—*S. K. Dinkins, Jr., Industrial Division.*

This is not a new process. It consists of setting up electrodes between which the item to be dried passes. A means for reversing the current several million times per second (the current that passes between the electrodes) causes a "revolution" of the molecules in the item passing through this electrical field, thereby generating heat.

I do not believe this method of drying wooden boxes finished with lacquer or varnish would be successful because all wood has a certain amount of moisture in it, and generating heat inside the wood would have a tendency to

NOT THREE...NOT FOUR...

But **five** rolls are necessary to obtain the extra fine grind which distinguishes O'Brien Finishes from all others. The 5-roller mills shown above, together with the modern dust collecting system, combine to insure O'Brien users of the super quality for which O'Brien Finishes are famous.

O'Brien makes top quality finishes for every industrial use. Write us about your finishing problems — ask us to quote on your requirements. O'BRIEN VARNISH COMPANY, SOUTH BEND 21, INDIANA.

O'BRIEN

INDUSTRIAL FINISHES

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bring the moisture to the outside surface, and this would ruin the finish.

This company would be far better off if they installed a heated tunnel—a tunnel with controlled air circulation, ventilation, heat and humidity, to suit their special conditions and requirements. Certainly this method of force drying would be less involved and less expensive to install. Furthermore this latter method is one that is tried and true, and the results can be definitely predicted.

During the war, the Q.M., where I was employed, bought sectional wood poles made of laminated birch 1½-in. in outside diameter—with a 5/32-in. wood thickness over a steel mandrel. The veneer was bonded with phenol-formaldehyde (liquid). Strips of veneer were fed onto the mandrel diagonally; one side of the veneer was coated with phenol. "Electronics," as D. Mfg. Co. calls it, was used for curing the plastic bonding material, *but there was no surface finish on the outside layer of veneer at the time,* hence the moisture could escape. This method of curing synthetic bonding materials is very good, but in the case of the sectional poles, the result was virtually a plastic with a wood binder.

Perhaps the method could be used to dry paint or any thin protective or decorative coating on metal, but since infra-red heat lamps and other equipment are available, practical and successful, why spend time and money on this other electrical apparatus?—P. C.

Clinton Elected President of Chicago P.V. & L. Ass'n.

Mr. Duane L. Clinton, President of The Clinton Co., was recently elected president of the Chicago Paint, Varnish & Lacquer Association, at the annual meeting held at the Furniture Club in Chicago, Ill.

An attractive one-story small factory, formerly owned and operated by Small Electric Motors (Canada) Ltd. It is located near Toronto. This plant has been purchased and will be operated by the Minneapolis-Honeywell Regulator Co.

YOU CAN *Reduce Costs* ON *Rub Finishing*

ALMOST 30%!...

TECHNICAL BULLETIN No. 5

Simply send for India's Bulletin No. 5. It presents some salient details on Spray-rub finishing *that no finisher can afford to be without.* For it tells you how to produce a clear wood finish with a perfect rubbed effect—without the costly operation of hand-rubbing! The Bulletin is *Free.* Send for it *now.*

INDIA SPRAY RUB FINISH

Ready for spraying, can be produced in *any* shop by *any* finisher. Not just another clear flat or semi-gloss lacquer, but a highly developed, perfect clear wood finish. Order 5 gallons at drum price, today.

Manufacturers of INDIA FINISHES

INDIA PAINT & LACQUER CO.

HIGH-GRADE PAINTS • VARNISHES • LACQUERS • ENAMELS

5894 SO. CENTRAL AVENUE LOS ANGELES 1, CALIFORNIA

Finishing Woodwork With Lacquer

We manufacture custom built business interiors. We do an excellent job, except for our finishing, which is mediocre.

Our problem is this: We use lacquer for spraying. Is this the best type of product to use for commercial finishing? If not, what is?

Lacquer does not fill the pores on walnut, oak and other deep grained woods. Is there a wood filler suitable for use under lacquer? If so, will you kindly inform us? Lacquer does not seem to have the body that varnish and shellac have, as far as we can see. Is this true, or is it our method of spraying that is wrong? We spray lacquer at a pressure of about 35-lbs. and thin only when necessary to produce flowing ability.

In short can you recommend a practical method for finishing hardwoods, as well as soft woods, that will assure us a nice, soft looking, enduring finish, whether it be lacquer or some other product?

We rub down between coats with sandpaper and steelwool, and finish off with No. 3/0 steelwool and oil. Is this correct?—E. Mfg. Co., (Baltimore).

I think the best help for you is to contact one of the finishing supply houses that advertises regularly in this magazine. If one of their salesmen or service men has a territory in Baltimore he can quickly help you by showing your finisher exactly what to use and how to use it.

The finish you want is not difficult to obtain. Varnish is fine as an interior finish and cabinet finish, but to use varnish you must allow more time for drying. You must have careful workers and a clean finishing room. Varnish will give more "body" and "solids" per coat than lacquer, and the varnish film may be tougher in many respects.

On the other hand lacquer gives quick drying. The "solids" content and "body" of the lacquer you use will be governed by the type of equipment you have available for applying the lacquer. Less room is required for drying lacquer, as compared to varnish. Lacquer rubs quicker, and usually easier. A damaged place in a lacquer finish can be repaired easier and quicker than in a varnish coating.

All in all, I prefer lacquer. A simple finish for wood fixtures, starting with a smoothly sanded surface is as follows:

1) Stain (of color selected) N. G. R., oil stain or pigment stain.

2) Fill with a 4-hour filler mixed to a creamy consistency. Brush it on across the grain and wipe it off across the grain. Clean up carefully with the grain. Let this filler dry thoroughly.

3) Sealer coat; shellac can be used if preferred, but for speed and ease of application I like a lacquer sealer.

4) Sand smoothly and wipe the sanded surface clean.

5) Spray on at least two coats of good "body" clear lacquer. Let dry overnight.

6) Wet sand to a smooth surface and rub with rubbing compound or with oil and pumice. Clean up the surface with a good clean-up polish.—E. HOGSTROM.

Increased Buyer Acceptance

of your furniture finish by increasing its clarity and transparency. A sure, quick improvement follows the use of Monogram glazing stains.

They are inexpensive to use. Work easily. Are practical. Are available in the latest colors. Add softness. Add depth. Add character . . . are clear and transparent.

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GRAND RAPIDS, MICHIGAN

Makers of the Famous Quaintance Finish

Materials Supplies Equipment

Mearlfoam Puts Out Solvent Fires

Mearlfoam 5, a war-developed type of mechanical foam for extinguishing gas, oil and solvent-type fires, is a product of The Mearl Corp., 153 Waverly Pl., New York, N. Y. The company was awarded a Certificate of Achievement by the Navy for the development of this all-purpose, fire extinguishing agent. Mearlfoam 5 meets all the rigid conditions of the new joint Army-Navy Specification, J. A. N. C-266. Circulars and pamphlets furnished on request.

Shows How to Select Decals

A new slide-rule type Decalcomania Selector to assist manufacturers and product designers in the specification of the correct decal nameplate, trademark, instruction or wiring diagram for application on difficult and unusual surfaces is being distributed by The Meyercord Co., 5323 W. Lake St., Chicago, 44, Ill., decal manufacturer.

The Decal Selector enables the prospective user to quickly determine how eleven types of decals may be applied to 14 different surfaces, using any one of seven application methods.

Application techniques shown vary from simple water adhesives to easy-to-use special cements. All are adaptable to production-line speeds. The Selector indicates decals resistant to abrasion, acids and extremes of humidity and temperature, and their application to paint, lacquer, enamel, raw wood, glass, metals, cloth, rubber, plastics and even crinkle finishes.

The company will send the Selector on request to manufacturers, product designers, purchasing agents and others interested in the use of decals.

Durable Flexible Finish for Leather

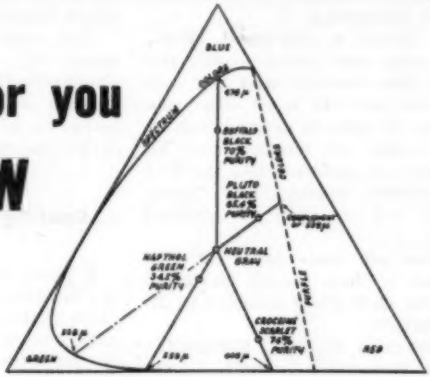
Low grade leather becomes high fashion with Leatherflex, a new finish developed by the H. V. Walker Co., Elizabeth, N. J. Bright and flexible, this new enamel can be heat-embossed to turn split sheep skin into simulated alligator or any other textured leather.

With maximum adhesion, maximum flexibility of agent, and bright clear colors as the goal, the Walker plant succeeded in creating a finish which will not flake, peel or discolor even under hard use.

Protected first with a sealer coat which prevents successive coats of enamel from soaking in, the leather is treated with a thick layer of translucent lacquer to which the desired pigment has been added.

This base finish is then heat-embossed to simulate the texture of the particular leather being copied. Leatherflex, known for its

Ready for you NOW



A new CHADELOID combination stain and filler

Chadeloid fundamental research has produced a new triumph for the industry—a combination stain and filler on a non-grain-raising stain base.

It has these features:

1. Dries rapidly.
2. Takes modern top coats which are the finishes of tomorrow.
3. Permits the use of modern finishes which cannot be used over present orthodox type oil paste wood filler.

Ask your secretary to write for the booklet, "Insure Your Stain Profits."

CHADELOID CORPORATION

308 W. FIRST ST. • DAYTON 2, OHIO

Patentees and Licensors

U. S. PATENTS — 1,877,748 — 1,898,247 — 1,930,768 — 1,977,345 — 2,000,120 — 2,000,121 2,044,770 — 2,093,424 — 2,108,984 — 2,161,503

CANADIAN PATENTS — 330,344 — 343,162 — 343,163

fast drying qualities, speeds production considerably at this stage of the processing.

To obtain a two-toned effect, a topping coat which colors the ridges but does not alter the base coat has set. If more than one overlay of color is desired, two or three coats of topping may be coat can be applied when the first successively applied and "spanished" off to give the desired tones.

When all coats have set, the leather is then smooth-plated to give the shell effect common to all fine leathers.

Unusually flexible, Leatherflex cannot peel, crack or flake. Leathers treated with this enamel require no special care to keep them bright and supple. Leatherflex is available in a large range of colors and is adaptable to almost every grade of leather.

Jetcote Black Finishes

Watson-Standard Co., Pittsburgh 12, Pa., announces that its Jetcote series of black finishes, incorporating the latest warproved technical advances, is now available for civilian production. The Jetcote series of black protective coatings is available in a number of types, each of which has been designed to meet specific requirements as to use and method of application. They make attractive and durable product finishes.

The lithographer, container manufacturer and metal fabricator will find the black finishes to be of definite interest from the stand point of appearance, fabrication and increased resistance. Makers of reflectors, stoves, and heaters will find the new heat-resistant blacks suitable for service at elevated temperatures.

Toy, drum and pail manufacturers will find greater ease of application in these tough durable finishes which have been formulated to withstand abrasion and severe handling.

Coating for Spray Booth Walls

Filmite, a newly developed, non-drying film to prevent overspray from sticking to dry walls of paint spray booths, is being marketed by the DuBois Co., 1120 W. Front St., Cincinnati 3, Ohio. This material sets with a tough, thin outer "skin" that resists penetration. The "body" of the film stays permanently soft, so that accumulated overspray peels off easily. The remaining Filmite (after stripping) can be washed off with water, but makes a good base for the next coating.

Filmite is non-toxic, non-irritant, non-inflammable and non-corrosive. It is supplied ready to use for spray or brush application.

Duco Metalli-Chrome Nitro Cellulose Lacquer

Last month the Du Pont Finishes Division introduced to the automobile industry an outstanding new development in automobile finishes called "Duco" Metalli-Chrome nitrocellulose lacquer. The new Metalli-Chrome colors are distinctively different—different because it has never been possible to manufacture these colors by previously existing methods. Twelve of these colors

STAINS

LACQUER SEALERS

CLEAR LACQUERS

FURNITURE POLISH

•

Available in Quantity

Write for Trial Samples

STANDARD INDUSTRIAL PRODUCTS, INC.

EVANSVILLE 4, INDIANA

were shown on 1946 model automobiles of various makes at a preview exhibit recently held in Detroit, Mich.

The exhibit explained visually why the new Metalli-Chrome colors presented to the eye a unique depth and brilliance, and demonstrated their extreme durability. Du Pont technical representatives were on hand for consultation.

Metal Washing Machine

Optimus Equipment Co., 209 Church St., Matawan, N. J., has just brought out a new continuous-type washing machine for handling metal parts on racks, before painting or plating. It will handle any type of parts provided they are free-draining, and the sprays have free access to the parts. Ordinary output of this machine is 60 racks of parts per hour.

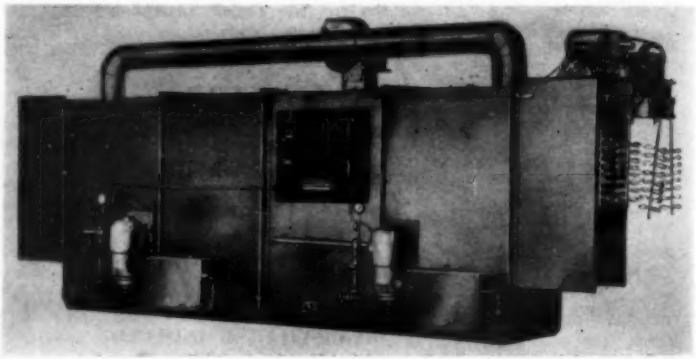
This machine can be used as a single-stage washer, or it can handle a number of successive operations, alkaline, acid, or neutral. With slight alterations it can take care of a series of different operations — washing, rinsing, drying, pickling, cyanide treatment, etc. If an acid solution is used, the machine is built of acid-proof material.

The machine may be connected to an exhaust blower so that fumes, unpleasant odors or excessive heat are removed from the room. It can be heated by steam, gas or electricity.

A number of manifolds with spraying nozzles are mounted on all sides of the washing chamber. Solution circulation system includes a pump, piping, series of filters and strainers to filter the solution before it is taken by the pump, and all necessary heating devices and accessories. The overhead chain conveyor is driven by motor and speed reducer with variable-speed pulley.

New Safety Air Gun

An improved air gun is announced by Algonquin Parts, Inc., 5000 Connecticut Ave., South Nor-



Can be used for washing, rinsing, drying and treating metal parts to be painted or plated. Work is conveyed through sprays of cleaning solution.

Compare Them . . .

ONE'S CLOUDY . . . ONE'S PERFECTION

See for yourself . . . PERFECTION FLAT FINISH is as clear as the glass on which it is applied! A product of modern synthetic chemistry, it eliminates the cloudiness of ordinary stearated flat finishes . . . brings out the full beauty of fine woods.

Available in a full range of long-lasting sheens, each equally clear, PERFECTION FLAT FINISH will force dry or air dry with a beautiful rubbed effect without orange peel—is liquor proof and water proof. Let us show you how PERFECTION FLAT FINISH will add to the beauty of your product. Phone or write for a free sample.

PERFECTION
PAINT & COLOR COMPANY
Indianapolis 2, Indiana

walk, Conn. Unlike other devices that are used in industry for ejecting chips, filings, oils, etc. from work in process, the Guardair, by its patented design, will not subject the operator to a blast of blinding particles that might prove fatal to vision.

An ingenious airguard, located above the nozzle of the air gun, provides a safety umbrella of air. Particles ejected by the nozzle are instantly removed from the work by a feather-action thumb button. Instead of chips, metal powder, sander dust or cleaning fluid ricocheting into the operator's eyes, these minute particles are arrested by the invisible ring of air and plummeted downward!

Durable Protective Coating for Plating Racks

Miccrotex, a new product announced by Michigan Chrome and Chemical Co., 6340 E. Jefferson Ave., Detroit 7, Mich., is a black coating material with a high luster. It is unaffected by any solution commonly used in plating and anodizing cycles, including the electrolytic sulphuric acid strip used to dissolve bright nickel, and alkaline cleaners at boiling temperatures. It is a new air-dry coating for plating racks—a thermoplastic insulating material which meets the requirements of all plating, anodizing, tannerizing, parkerizing, and bonderizing cycles. Miccrotex has essentially the same ingredients and effective insulating properties as Miccrotape and Miccrotube, other products of Michigan Chrome & Chemical Co.

Miccrotex is tough, resilient and flexible and completely overcomes the difficulties commonly found in lacquers which have a tendency to become brittle with use, causing seepage under the coating and then peeling. It attains maximum adhesion without depending upon shrinkage.

Miccrotex may be successfully dipped, brushed or sprayed, depending upon the construction of the rack. It is easy and economical to use; saves time and material in application.

Roller Coating Machine

An improved roller coating machine is announced by M. D. Knowlton Co., Rochester 14, N. Y.

Quoting from the 2-page bulletin:

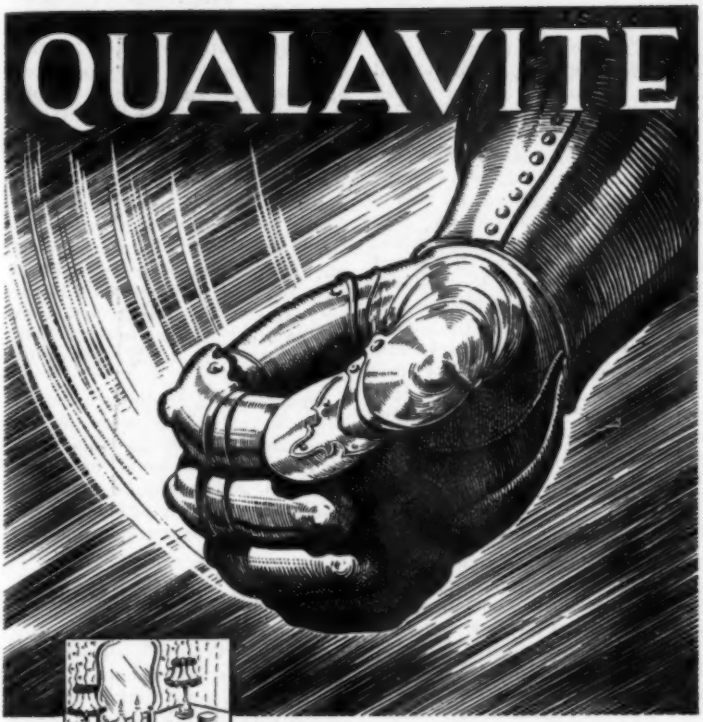
"This new Knowlton coating machine is fully adjustable to permit the application of any desired thickness of lacquer, wax or paraffine on one or both sides of stock in one operation. The machine handles stock up to ⅝-in. in thickness, and can be equipped to handle thicker stock. An automatic pump conveys the coating material to the top rollers. The feed table has a side gauge and adjustable receiving bank.

Optional or extra equipment include felt scrapers, doctor blade scrapers and doctor rolls; also a thermostatically controlled coating chamber.

New Mechanical Pickler Cleans Steel

Pickling of steel bars can be greatly accelerated by the practice of raising and lowering a sling full of bars in the pickle vat. This procedure causes the bars to move one against the other, cracking the oxide scale and aiding in its removal. Utilizing this principle, The Youngstown Welding & Engineer-

QUALAVITE



for Finish Resistance

Qualavite 100E is the modern finishing coat-of-armor. It positively resists the age-old destructive elements—alcohol, water, moderate heat, abrasion, impact and will not scratch white seven days after application. It is hard and retains its flexibility and resistance indefinitely. Qualavite 100E, the clear resistant lacquer, will give the protective finish necessary for present-day sales appeal.

Write for quotations.

Manufactured by the Makers of

AMERICA'S FINEST PADDING LACQUER

QUALASOLE

QUALATONE PRODUCTS INCORPORATED

21 GAY STREET **NEW YORK 14, NEW YORK**

ing Co., 3700 Oakwood Ave., Youngstown 9, Ohio, has developed a new mechanical pickler which automatically raises and lowers five to ten tons of bars at a predetermined, continuous rate. Pickling time is often cut 40% to 60%, with resultant savings in steam, man power, and mantenance.

Operation of the mechanical pickler is simple. Two horizontal shafts at each side of the pickling tank are geared to a driving mechanism. Sheaves, fixed to the shafts, carry the chains. When the pickler is operating, the chains move; this causes the rod bars and other stock being pickled to revolve against each other in the solution. In this way, all surfaces are exposed to action of the solution, and scale removal is speeded by the rubbing action.

When used for tubing, the Weldco pickler raises the tubes out of the solution and tilts them. Thus, the tubes are flushed out, providing a more vigorous pickling action on the inside surfaces of the tubes. The cycle of raising and lowering the shapes into the pickling solution can be regulated by simple adjustment, according to the requirements of the material being processed.

Paint Brush Cleaner

Materials have now become available to permit the return to the market of "Keepkan" automatic Paint brush cleaner, the cleaner that cleans before the damage is done. Introduced briefly before the war, this patented device has been off the market since Pearl Harbor.

Keepkan goes right to the heart of the trouble by removing the paint, varnish, lacquer, enamel, filler, stain, etc., from the bristles before it hardens. The patented brushanger, special laboratory developed liquid, and container are sold as a complete unit which handles the entire brush-cleaning job. The minute a brush job is finished, the wet brush is inserted in the brushanger, which suspends the bristles in the liquid, allowing all of the pigment to be drained out. Even the paint way up in the heel of the brush is removed by capillary action. The brush is then soft and clean, ready for re-use or storage.

Brushes used in different colors of paint may be cleaned at the same time and in the same can. Evaporation of liquid has been retarded, and it may be used over and over again. A product of the Howe Co., Stony Creek, Conn.

Lacquer Control Stops Blushing

"Lacquer Control", a product of Brown Paint Co., Inc., Charlotte, N. C., is a combination of high grade slow drying solvents which gives a highly concentrated retarding effect, thus holding all components of lacquer in complete solution after being applied to a panel. It is 100% solvent and evaporates completely from the lacquer film.

According to the manufacturer, Lacquer Control will reduce polishing up to 50%. It increases the durability of lacquer by retarding the chalking period from 3 to 5 months; stops all blushing; flows out orange peel effects; makes matching spots work easier, especially on a new factory lacquer or baked enamel job; it imparts the natural luster of lacquer to match

Finesse

with A-M FINE FINISHES

The delicate skill that gives that extra touch of refinement to quality merchandise is brought out to its fullest thru the "just right" appearance that A-M Fine Finishes impart. Formulated to meet the requirements of discriminating manufacturers of quality products, A-M Fine Finishes can be depended upon to measure up to the highest standards of appearance and durability and to satisfy the most exacting demands of the production line.

AMERICAN-MARIETTA COMPANY

One of the Great Names in Paint Making

43 EAST OHIO • CHICAGO 11, ILLINOIS

that of the factory finish. It is used in last coat only.

Directions call for adding 2-oz. to 6-oz. of Lacquer Control to a quart of thinned color, or adding the same amount to a quart of lacquer thinner wetting the entire job thoroughly, as a solvent coat. You can slow the drying of lacquers up to two hours if enough Lacquer Control is added to the last coat.

Hydrozo Waterproofs Many Surfaces

A new transparent, waterproofing material is announced by National Hydrozo Co. 5234 St. Clair Ave., Cleveland 3, Ohio.

The product, known as "Hydrozo" has been in use on a limited scale for over 40 years. It was first developed in 1902 by E. E. Blackman, a Nebraska college professor of archaeology, for use in preserving his specimens.

"Hydrozo" is a mineral preservative that is not affected after application by atmospheric conditions. "Hydrozo" penetrates completely so that when brushed or sprayed on, it thoroughly and permanently waterproofs concrete, brick, stone, tile, stucco, wood and many other types of surfaces, making them free from dampness, seepage, deterioriation, alkali, efflorescence or acid.

The entire surface being treated should be completely saturated with two coats, applied not less than 24 hours apart. A third coat may be necessary on interior walls for extreme cases of pressure seepage. Each gallon covers from 100 to 200-sq. ft. or

STILLE-YOUNG
Fillers

STILLE-YOUNG *Spee-D-Dry Filler is the original fast-drying filler, and still the leader in its field.*

The basic coat is filler. Why not be sure of a filler that embodies all of the qualities that a filler must have today, to combine practical working qualities with durability and permanent results?

THE STILLE-YOUNG CORPORATION
Manufacturers • LACQUERS • SEALERS • FILLERS • STAINS
CHICAGO 14, ILLINOIS

FUNCTIONAL USES

Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide

SOUND DEADENING • TEMPERATURE INSULATION • INTEGRAL GASKETS • SHOCK ABSORBING SURFACE • NON-MAR SURFACE • NON-GLARE SURFACE.

DECORATIVE USES

Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

SUEDE LEATHER • FURNITURE UPHOLSTERY • INTERIOR AND DRAPERY FABRICS • VELVET • VELOUR • MOHAIR.

For synthetic surfaces like SUEDE • MOHAIR • FELT • CARPET

Available in all colors, the finely cut particles of Rayco Flock (cotton, rayon, hair, etc.) adhere to any surface or selected portion thereof, to produce finishes of synthetic suede leather, velvet, velour, mohair, felt, carpet, etc. New book: "Surface Coating with Flock" contains actual swatches and a wealth of information of assistance to product planners and production men.

REQUEST: "SURFACE COATING WITH FLOCK"

RAYON PROCESSING CO. of R. I. INC.

55 TREMONT ST., CENTRAL FALLS, RHODE ISLAND

more of surface with two coats, depending more or less on the porousness of the material being treated.

While "Hydrozo" comes in a colorless form, it can be used as a waterproof masonry paint by adding to it equal parts of Lithozinc paste. When color is wanted, paste colors may be added to this mixture. "Hydrozo" has the consistency of turpentine.

Acid Proof Work Suit

Addition of a Koroseal work and acid suit to its line of industrial clothing is announced by The B. F. Goodrich Co., Akron, Ohio. Koroseal is the flexible plastic material which found extensive application in the war effort and is now being used in a wide variety of consumer and industrial products.

Made from best quality textile sheeting, coated black with Koroseal, the suit has been designed for maximum lightness and toughness, including resistance to abrasion and practically all solvents and acids.

Cleans Small Parts by Agitation in Solvent

A small motor-driven machine, announced by Equipment Division of Magnus Chemical Co., Garwood, N. J., is designed for cleaning basketloads of small metal parts.

The work to be cleaned is vigorously agitated up and down 72 times a minute in the cleaning solution. This dynamic agitation, plus the action of the cleaning solution, "shears" the dirty deposits from the parts more quickly and thoroughly than would be possible in a still tank, using a static solution.

The Magnus Aja-Dip, Jr., may be used with either cold or heated cleaning solutions, depending upon the nature of the deposits to be removed. It requires no expensive installation hook-up; just plug it into a convenient electric outlet.

The wire mesh self which supports mesh containers of parts to be cleaned is given 72 up-and-down strokes a minute by a 1/3-hp. motor, driving through a reduction gear. The tank clearance inside is 24x18x23½-in.; load capacity is 75-lbs.; up-and-down stroke, 5-in.

New Fast-Curing Insulating Varnish

A new internal-curing insulating varnish which is claimed to cut curing time up to 50%, but which involves no change in curing equipment, has been announced by Irvington Varnish & Insulator Co., Irvington, N. J. Known as "Harvel 912C", it is a new member of the Harvel series of phenol-aldehyde varnishes produced by Irvington. Typical operational curing schedule of 912C in standard convection ovens, based on actual coil curing, is:

2 to 4 hours at 285° F.
3 to 5 hours at 260° F.
4 to 6 hours at 250° F.

These schedules vary slightly with coil size and iron mass; and the periods can be reduced with the use of infra-red drying equipment.

In addition to faster curing schedules, 912C also provides greater dip-tank and storage stability, while maintaining all of the favorable electrical and chemical properties of Harvel varnishes. Information and samples can be secured from the manufacturer.

Pure Pigments

GROUND IN JAPAN

QUICK DISPERSION — FAST DRYING — TINTING STRENGTH

- Color pigments ground in Japan are one of the most important commodities to the finishing trades.
- Color pigments ground in Japan, that will meet their rigid requirements must have PURITY—PERMANENCY—PERFECTION.
- Behlen's Superior Japan Colors will meet these requirements and give the triple-performance, artists, craftsmen and experts expect from Quality Japan Colors.
- Behlen's Japan Colors excel in Quick Dispersion, Fast Drying and Tinting Strength.
- Behlen's Superior Japan Colors are carried in stock in 1/4 gal. cans—1/16 gal. cans and in tubes.

OVER 45 COLORS

Write for Color Card and Price List.

◆

Finishing Headquarters Since 1888

H. BEHLEN & BRO., INC.

10 CHRISTOPHER STREET, NEW YORK 14, N. Y.

Random Comment on the Industrial Scene

(Continued from page 10)

about their chances of obtaining the products of their dreams, and have dissipated their savings in short-lived fun and holidays.

* * *

Plastic For Batteries—A 20% reduction in weight, compared with aluminum and rubber, is now being effected in the manufacture of the housing for airplane storage batteries, through the use of Du Pont's Lucite resin. Originally developed for the jet-propelled P-80 "Shooting Star," it is now being made available for general aircraft use.

Tests have shown that the new container withstands normal shocks extremely well, besides offering excellent resistance to acid and heat. At the present time, the side rails which are used for sliding the battery into place, are constructed separately and cemented to the sides of the transparent container. It is hoped, however, to devise in the near future a technique for molding the entire piece in a single operation.

* * *

New Glass Coating—Another wartime industrial secret has now been revealed. It is the method perfected by the American Optical Co. for coating large sheets of ordinary plate glass with chemicals to increase or decrease light reflection. Future applications of this process are expected to extend to the treatment of plastics, paper and other materials.

At this writing, the formulation of the new process has not yet been announced. In the past, it was necessary to use acids or magnesium fluoride to produce similar effects. Now glass can be treated easily by dipping, spraying or swabbing.

Ordinary glass can now be made to reflect 70% and act as a mirror, although the glass remains transparent. The improvement should be useful for the doors of refrigerators and ovens—and possibly, too, in the furniture field.

* * *

Service For Readers—Subscribers to *Industrial Finishing* may obtain free tickets to many leading radio broadcasts on request. When planning a trip to Manhattan, drop a line to: *Lawrence H. Singer, 130 West 86th Street, New York 24, N. Y.* Among cooperating sponsors are: Philip Morris and Co. ("It Pays To Be Ignorant"); Continental Can Company ("Continental Celebrity Club"); and Cities Service Co. ("Highways In Melody").

Maas & Waldstein Exhibit

Maas & Waldstein Co., manufacturer of specialized production finishes, participated in the exhibition sponsored by the Newark Chamber of Commerce, held at the Hotel Sheraton, May 20th through June 2nd.

The Maas & Waldstein booth displayed customers' articles with a variety of coatings, including lacquers, synthetic and lacquer enamels, and a number of special purpose and novelty finishes. These products showed transparent, high gloss, metallic, hammered, and wrinkled surfaces.

The application of these finishes to metal, wood and plastic products and electrical equipment were illustrated.

CONSULTANT — DESIGNER
INDUSTRIAL FINISHING EQUIPMENT
LAYOUTS — SPECIFICATIONS
FOR PAINTED METAL PRODUCTS
20 years' experience in the design and construction of conveyors—ovens—spray booths—replacement air supply — paint circulating — paint handling—metal cleaning. Available also for help on troublesome equipment problems and production difficulties.
H. R. MADSON
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NEW PERIOD LACQUERS ARE ATTRACTIVE & DURABLE

"A thing of beauty is a joy to behold"

New Period Lacquers produce a beautiful finish that is durable and withstands normal abuse. They are easy to apply and help to speed up production schedules. Manufacturers who are interested in a better finish at low cost are invited to try New Period Lacquers at our expense.

The complete New Period line includes sealers, gloss, semi-gloss, clear and pigmented lacquers. They are formulated for various methods of application and for any production setup.

A production sample, at our expense, will convince you of its superiority.

Our complete line of New Period finishes and our laboratory facilities are at your service. Write us!

ESTABLISHED 1917

NEW YORK WOODFINISHERS' Supply Co.

Booklets Catalogs Circulars

Electric Controls Catalog

If you have any use for electric controls for temperature, pressure, etc., send for the new illustrated catalog published by United Electric Control Co., 69 A St., Boston 27, Mass.

Electronics Book Free

If you are interested in the application of electronics to industry, send for a free copy of "The Business Man's Guide to Electronics", published by Electronic Tube Sales Department of Westinghouse Electric Corp., Bloomfield, N. J. The book contains 28 illustrated pages 8½x11-in.

New Mahogany Book

Fifth edition of The Mahogany Book is now ready. It contains 80 pages 7x10-in. and is attractively illustrated, including color plates showing 35 different kinds of mahogany grain. Everything historical, modern and practical about mahogany is covered, along with pictures of period designs of furniture, pianos, radios, cabin cruisers; bank, store and office fixtures; airplanes, etc. For further information write the Mahogany Association, Inc., 75 E. Wacker Drive, Chicago 1.

Decal Sign Brochure Free

The Meyercord Company of Chicago is distributing a new, full-color Decalcomania Sign "Ad-Visor," issued as a guide to point-of-sale promotion and containing suggestions for dealers identification and product promotion.

The brochure, reproducing 94 colorful decal signs used by the nation's leading advertisers, shows where, when and how to use decal store signs, and suggests unusual designs and treatments. It describes how national merchandisers cash in on sidewalk circulation and store traffic possibilities.

The brochure, may be had by application on company letterhead to the main offices at 5323 W. Lake St., Chicago 44, Ill., the Pacific Coast Division, Los Angeles, Calif., or any of the Meyercord branch offices and plants in 30 foreign countries.

Paint Pump Catalog

The Quimby Pump Division of H. K. Porter Co., Inc., 342 Thomas St., Newark, N. J., has released a new bulletin on "Streamflow" Rotex Pumps which are rotary type, positive displacement pumps used for moderate or low viscosity liquids under medium pressure. These pumps can be used for pumping paints, rayon dope, shellac, solvents, oils, varnishes and other liquids.

Corrosion Proof Paint

A new illustrated booklet, 12 pages 8½x11-in., gives information about Prufcoat protective coatings for corrosion-proofing concrete, brick, masonry, cast stone, structural steel and wood surfaces. A surface that is properly Prufcoated is durable and long resistant to acids, alkalis, oils and water.

A copy of the booklet can be obtained free by writing to Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass.

Rubber-Lined Tank Catalog

A new 12-page catalog section on its line of Vulcalock rubber-lined tanks and tank cars for handling corrosives has just been published by The B. F. Goodrich Co., Akron, Ohio and is now available upon request.

The catalog section describes the company's Vulcalock process, by which rubber can be attached directly to the surface of metals with an adhesion exceeding 500-lbs. per square inch, in practically an integral union. This process has revolutionized the handling of corrosives, since it makes it practicable to combine the stability of metal with the unequalled corrosion and abrasion resistant properties of flexible rubber.

Fires in Factories Booklet

A new booklet "Fire vs You—Your Plant, Your Job, Your Safety", contains information and 2-color illustrations which help to teach workers how to pre-

PRECISION FORMULATED · PRODUCTION TESTED

Quality Coating Finishes

for METAL · WOOD · COMPOSITION · PLASTICS · PAPER · ETC.

NEW!

SAVE LABOR AND MATERIALS

with

TEXON ONE COAT LACQUER for WOOD and METAL

Coatings with a film thickness three times heavier than usually obtained from ordinary lacquers can be achieved with one spray application. Will not penetrate porous surfaces and can be used for wood finishes without a sealer.

Such properties in one single coat have been previously obtained only with the so called "Hot Spray Process," or with great sacrifice in drying speed.

TEXON ONE COAT LACQUER does not require any special equipment for application and it can be sprayed as it comes in the can. Dries in 10 minutes, ready to handle. Produces a lustrous finish of fine texture with a marproof and elastic film of long wearing qualities.

Ideal for use where previously two or more coats have been applied. Has good adhesion on metal, wood, composition board, paper, etc.

Can be supplied in all colors—except clear.

Write for YOUR sample NOW.

Note: *When writing advise us what article is to be finished. Quality and type of finish required. Method of application. If possible —send sample of unfinished piece and sample of finish desired.*

TEXON INDUSTRIAL CORP.

Manufacturers of

LACQUERS · ENAMELS · SYNTHETICS · THINNERS

WRINKLES · AUTOMOTIVE COATINGS

PAINTS · VARNISHES

General Offices: 10-05 50th Avenue · Long Island City 1, N. Y.

vent and how to fight fires that start in factories. It contains 24 pages 5x7-in. and is bound between heavy gray covers.

Just published by the Associated Factory Mutual Fire Insurance Companies for their policy-holders, the booklet is also offered at cost to anyone interested. A sample copy and information on prices in quantity can be obtained by writing the Inspection Department, 184 High St., Boston 10, Mass.

Hurley, Export Manager for S. C. Johnson & Son

John H. Hurley, former Product Finishes Sales Manager for Johnson's Wax, has been appointed Manager of the Export Department, according to P. M. Petersen, Sales Vice President for S. C. Johnson & Son, Inc., Racine, Wisc.

Hurley joined the Johnson sales staff in 1941 as head of the Maintenance Paint section and was given the Product Finishes post in 1944. His latest appointment highlights a drive to expand export activities for the Racine wax manufacturing firm.

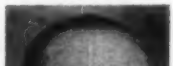
Alarm Warns of Dangerous Solvent Fumes, Gases

In a recent lecture and demonstration staged at the plant of Davis Emergency Equipment Co., Inc., Newark, N. J., Mr. Davis stressed the importance of positive preventive action in the first five minutes of a dangerous condition. A demonstration showed that such action could be automatically controlled through the use of a new instrument which detects a dangerous accumulation of combustible gas in a given area, trips a relay, and operates a warning signal. If the warning signal is not heeded within a stated time—which can be set from zero seconds to one minute—the control will automatically shut down the machine or operation involved and operate a series of CO_2 extinguisher heads to prevent an explosion or flash fire.

Another important phase of preventing fires or explosions where combustible gases or fumes exist, and one in which many of those present were intensely interested, was a continuous analysis of the air in a working area where a process involved the use of solvents or other inflammable materials. Mr. Davis demonstrated a control instrument which can be installed away from the danger area and connected to a detection unit within the danger area, continuously analysing the air for the presence of a combustible mixture. When a dangerous condition exists this head flashes a warning which is picked up by the control instrument. This instrument then issues both audible and visible warnings. If not heeded within a specified number of seconds, a relay closes, bringing into operation extinguishers or other preventive apparatus.

Fidelius Becomes Engineer with Optimus

Walter R. Fidelius has been appointed Assistant Chief Engineer by the Optimus Equipment Co., manufacturer of metal washing and drying equipment, Matawan, N. J.



W. A. Fidelius now Assistant Chief Engineer for Optimus Equipment Co.

Mr. Fidelius was formerly with a boiler company in Oswego, N. Y., and prior to that he was associated with a power plant corporation in Brooklyn, N. Y.

A graduate of Cooper Union with a degree of B. S. in M. E., Mr. Fidelius continued further studies on this subject at New York University. In his new post, he will supervise in design, construction and service.

Society of Body Engineers

Announcement has been made of the formation of a new engineering society called "The American Society of Body Engineers, Inc." by its president, Mr. I. Louis Carron, body engineer of the Detroit Harvester Co. The society has been organized as a non-profit corporation with national headquarters in the Rackham Memorial Building in Detroit, Mich. This is an aggressive organization composed entirely of leading body engineers from practically all the companies in the automotive industry.

A Technical Convention will be held in October, in the Rackham Memorial Bldg. with Mr. Carl W. Cenzer as General Chairman. Elaborate plans are already well underway. Committees are being formed and are to be headed by capable and experienced men who have devoted many years toward the progress of body design and engineering.

It's Tough—tougher than the ordinary lacquers!

Yes, here's a tough piece of goods, a lacquer finish that will meet the most critical requirements of postwar production. A nation hardened to bulldozers, tanks, battleships, monster planes and subs, will accept nothing less than a product finish that endures the elements, and the hardships of constant usage. Schaefer's Mar Proof Lacquer is a finish that cannot be marred or scratched. Made in either clear gloss rubbing or satin finish, it produces a splendid transparent coating of full depth on maple, walnut, gum, mahogany and other cabinet woods. Economical; gives plenty of coverage; dries quickly. Our Mar Proof Lacquer Sealer is recommended with it for a first-coater.

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Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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Editorial

You'll Wait Longer for New Things

New automobiles, refrigerators, stoves, sinks, bathroom fixtures and like items will not be available for all who want them for at least five years, according to a survey of leading Detroit industrialists made by the N. Y. Journal of Commerce.

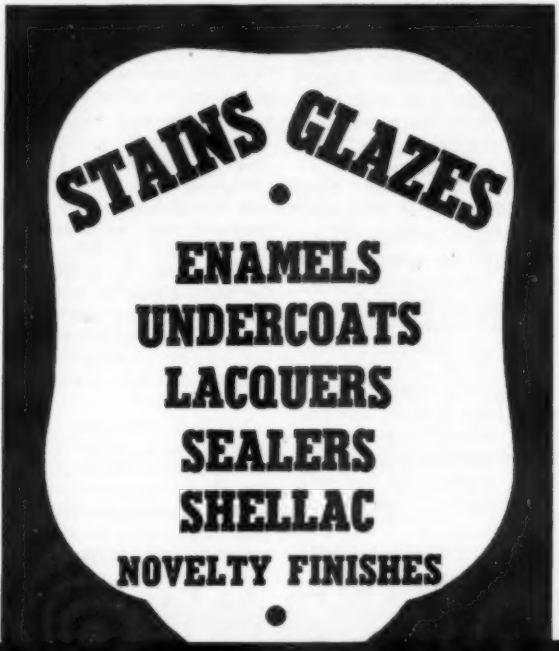
Because of material shortages, labor difficulties and machinery bottlenecks, representatives of the nerve center of the mass production industries have revised their earlier predictions of 2½ to 3 years to satisfy the huge pent-up demand for their products to the longer period of at least five years. Peak production, they state, will not be reached in most factories before Spring, 1947.

Of course the slower return to peak production of consumer products may help avoid the kind of industrial "boom" and its resulting "bust" that followed the first World War. If labor disputes were immediately ended, one automotive manufacturer indicated that peak production could be reached in three months. The survey shows the shortage of cold-rolled steel is the most important material factor holding up production.

Air Velocity in Spray Booths

Men responsible for production in the product painting and finishing division of a factory should know something about the movement of air in spray booths. In the small shop, where only one or two booths are needed, the firm may purchase a used booth provided it is in good condition. In most cases the main thing is to find out if the booth is of proper size for the work—and its condition. Little or no thought is given to the size and capacity of the exhaust system, but this is highly important, especially if the booth to be used is an old one.

A simple rule to follow is that a booth in which filler is to be



IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

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sprayed should have an air velocity of at least 150-ft. per minute over the front area of the booth. Booths in which all other finishing materials are to be sprayed will need a minium of 100-ft. per minute air velocity over the front area. The additional air velocity required in a filler booth is due to the added weight of this material compared with stain, lacquer, sealer, etc.

A check-up in the movement of air by a well informed man may be enlightening not only on spray booths that are contemplated for purchase but on present booths, provided they have been installed for several years. Spray booths having a uniform flow of air and an adequate exhaust system make it possible to produce better work more rapidly, more safely and with greater cleanliness.

Defer Action, and You Defer Earnings

★ Should the manufacturer who needs finishing equipment start selecting from the best of what is now on the market, or postpone his investment until the "something better" comes along in the future? For an interesting sidelight on this problem, let's turn back to the early days of radio, when a similar question arose in many homes concerning the purchase "now, or after they perfect them."

Some families did hold back for the perfection that seemed always just around the corner. While they waited, they missed years of entertainment and many of the thrills which could never be regained in later years.

Management in the finishing plant or department has plenty of opportunity for advancement right now. Certainly, there will be new products and equipment along later. The real question is: Will the improvement be sufficient to pay for all the profits lost while waiting for it? And what plant or department can afford to run at partial efficiency because it awaits the perfection which must always lie in the future?

It's today that the manufacturer must do his work, sell his goods and services, earn his profit. He needs today's profits to maintain his business at an efficient level. Even the best of planning for the future does not meet the current payroll and overhead.

Yes, in the future there will be improved products and equipment a step closer to perfection. When they come, you must be ready for them. Meanwhile, the urgent problem is to select the most suitable items from current offerings — a task which fortunately is made easier by the advertising columns of this magazine.—D. M.

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

Colors and Finishes for Exciting New Products

★ One of the most powerful influences in the lives of our American people today is the color and finish on products with which they come in frequent contact. In the home, office, store, factory and even on the farm, those products that have the more pleasing finish

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Speed production.

Stain and fill in one operation.

Eliminate several costly operations and reduce drying time by 1½ to 2½ days.

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I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings from any surface or material . . costs less to use . . saves time, labor and material.

BRUSH CLEANER I. C. D.—Non-inflammable brush cleaner works fast . . does not injure nor loosen the bristles. Easy to use . . leaves the bristles clean as a whistle. Order a gallon can and convince yourself.

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and color are always preferred. Many a finished product is bought when the buyer really doesn't need it; it is paid for and taken because it looks inviting and attractive as a result of its fine design, color and finish.

Several of my friends in the field of industrial finishing have the ability to create wonderful finishes and they are doing so every day. They are a restless lot, these industrial finishing formulators and idea makers. In their efforts to create finer designs and finishes for products of this postwar era, they strive to outdo their past performances. They drive themselves to create new wonders. For one who creates, there is no day and there is no night.

There will be hundreds of thousands of new and exciting products to manufacture. Stylists must bear in mind that our returned service men are eager to put everything associated with war and foreign countries far into the background of forgotten things. They want their furniture and other things with which they are associated to reflect in their subconscious minds a feeling of security, and the beauty of living far away from those horrible nightmares of the past.

The finishing industry, which performed such modern miracles in and behind and above the front lines during the past war has what it takes to answer the new challenge. We can and we will produce finer, more beautiful and more durable finished products; and we will have the help of better production methods which were developed during the war years. All machinery and equipment in the finisher's art will be brought to bear on the postwar battle, to recreate sanity and harmony among ourselves and our neighbors. Then brother, when you go to your favorite club or recreation parlor, you may momentarily sit back, take a sip and dream again. —Norman Abramovice.

Executive Decisions on Real Improvements

Half way measures seldom pay dividends. If you are considering installation of a new or improved finishing system, an experienced group of finishing engineers are recommended to plan and install the right equipment in right places, cut corners where corners should be cut, and reduce finishing time and costs with safety. Such a group will prove invaluable in working with your organization and with your finish material suppliers. They will give attention to your present and possible future product finishing requirements. As a result you will get a satisfactory, smooth running, and trouble-free finishing system—good now and in the future too.

Saving through spending is an age old maxim, and it certainly has proved to be true in product and finishing painting systems. It is far better to go all out, do the job right, complete in every detail, or abandon the idea until some future time when it can be done right.

Perk Up Morale of Your Employees

★ Some problems of reactivated finishing plants and departments are over—that is as far as labor shortages are concerned. Basic ingredients in the finishing materials have been improved on to such a

The Real Solution to Rising Labor Costs

Palmer-Bee Continuous Chain Conveyors are the real solution to rising labor costs and fixed selling prices. Reduction of in-process time results in vastly increased production at a much lower cost. Quality is improved.

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5354 CEL-U-LAK gives a thin, colorless, tough adherent film of great resistance to rust and tarnish . . . Widely used for tools, hardware, sporting goods, lighting fixtures, etc. . . . Can be reduced 100% to 200% and applied by dip or spray.

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degree that shortages of items imported in past years are not of a critical nature. Given adequate labor and materials to get "on the ball," we find that there is one major hurdle that sooner or later, the sooner the better, must be met by the key individuals concerned. That hurdle is how to handle your finishing room help. After all, working in a finishing room is not an attractive proposition for many people, even though they may take a fling at it.

Many of our fellowmen do not like paint smells or sandpaper dust or slivers or spray fumes and other finishing room odors. These same people may be excellent workers and an asset to the department. Once hired they may be good workers for a while; then suddenly there may be evidence of slight crabbing and sulking, and perhaps an attitude of carelessness. At this point a genuine department head is faced with the beginning of a major hurdle.

It is urgently important that the boss size up the situation, find out what the trouble is and act quickly to correct whatever is causing this obvious fall in morale among his help. When one takes into consideration the explosive situations built up by an accumulation of complaints by labor, he can easily see that by making immediate reasonable adjustments now, he won't have a major problem to handle later.

It may be advisable to supply those who work at dip-coating with special gloves, goggles, aprons or boots—or it may be advisable to provide other equipment to certain operators to make sure that the health hazard is eliminated. A department radio for use of employees during rest periods, lunch periods, or in the morning before work; a cup of hot coffee, tea or a bowl of soup at a stated time may help employee morale. Another suggestion is an employee paper. This can be run on a mimeograph machine once or twice a month. Let employees run this.

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If you make a sound investment in employee morale and continue to watch it grow, dear Mr. Bossman, your sleepless nights will end and sweet dreams will be yours for the future.—NORMAN ABRAMOVICE.

Include Supervision in Overtime Costs

★The cost of over-time work in the finishing department cannot be measured in wages alone. Included in the total must be overhead and operating expenses. Not the least important will be the cost of supervision during those extra hours.

In order to keep his costs down to a minimum, the foreman finisher may feel that it is wise to run the department at 100% capacity during any over-time, and then restore normal schedules as soon as possible. In general, that policy has much in its favor. Nevertheless, there are many instances when only part of the workers need to be used to reach the desired goals. Especially will this be true when "bottlenecks" appear in production, or when available skilled employees require extra hours to keep up their end of the schedule.

Over a period of years, calling in workers for over-time only when they are actually needed will tend to balance up rather well. The exception, of course, lies with the foreman finisher. He must be on hand whether the whole group or only a fraction of it is working over-time. It is well for him to have all of the figures ready to meet the challenge of management, which may fail to see the increased efficiency obtained by spreading the department's over-time until it

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more closely matches the actual demands.

The foreman deserves proper compensation for himself, in keeping with the longer hours he must spend in the plant. The improved quantity and quality of production will soon show he is fully entitled to reasonable rewards for his extra effort.—D. G.

COATING INTERIORS OF TANK CARS

(Continued from page 74)

char exuded fluids, but the sandblasting removes all traces of these potential trouble-makers.

A fair percentage of tank cars are permanently insulated and jacketed when received for coating. Cars that do not have insulated tanks must be insulated temporarily for proper baking, and this phase of the operation is accomplished before prebaking. After sandblasting, the car is carefully inspected before the first coat is applied. Each coat is again inspected and the tank is heated to temperatures high enough to harden the film. Multiple coats are then applied and the car is given its final coating inspection.

High efficiency furnaces are adjusted and outlets are directed for proper flow of hot air to prevent certain portions of the surface from being overbaked while others are underbaked. The bake usually requires about ten hours. Thermocouples at various points indicate temperatures as the bake progresses. The end temperature is approximately 340° F and the steel temperature is held at that

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Before installation of this Jensen "dual-heat" infra-red oven at Columbus Heating and Ventilating Company, humid weather slowed down finishing production on storage-tanks-with-skids virtually to a stand-still. Paint took from 5 to 6 days to dry. Now, with Jensen "dual-heat", the company finishes 10 TANKS PER HOUR *regardless of the weather!* This specially engineered Jensen oven uses only 160 lamps, with two rows underneath the conveyor belt to reach the extreme bottom of the tanks.

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"The Thinner Specialists"

point for half an hour. Cooling takes place overnight; then the car is given its final inspection.

By this fast coating method, six cars are handled inside the plant at one time and the work is routed, as much as possible on a production basis.—*Bakelite Review.*

Bleaching Compounds for Wood

L. R. Van Allen Co., manufacturer of "Blanchit", for bleaching the color from wood, announces "return to the manufacture of Blanchit as made pre-war". The company is equipped for much greater capacity at its Michigan City, Ind., factory.

Mr. R. S. Van Allen is now President of the company. The firm's office address is 404 N. Wells St., Chicago, Ill. Printed literature about wood bleaching is available free.

Represents Sundstrand in N. C.

H. R. Jones Tool & Supply Co., Greensboro, N. C., announces that it has been appointed exclusive sales representative for Sundstrand portable sanding and rubbing machines.

Yarnall 10-Year Men Entertained

All factory and office employees of ten years or more service with the Yarnall Paint Co. (Philadelphia, Pa.), were entertained at a luncheon Thursday, May 23.

Wm. McKnight, President of the company presented inscribed gold watches to Nicholas J. Edge, Plant Engineer, 44 years service; Alexander Kirkpatrick, Shipping Department, 44 years service; and Wm. Hesselbacher, Paint Foreman, 27 years service.

Eberley Represents Hilo in Upper N.Y. State

In line with its current policy of sending technically trained men into the field, the Hilo Varnish Corp., Brooklyn, N. Y., has named Merwin J. Eberley, former chemist in the Research and Development Laboratory, to the upper New York State industrial sales territory.

Eberley is credited with much of the research and development work on Hilo products during the eight years he was connected with the laboratories.

He served in the Army about 2½ years. He is a native of Whitesboro, New York and will make his sales headquarters in that city.